



CRMS Website Training

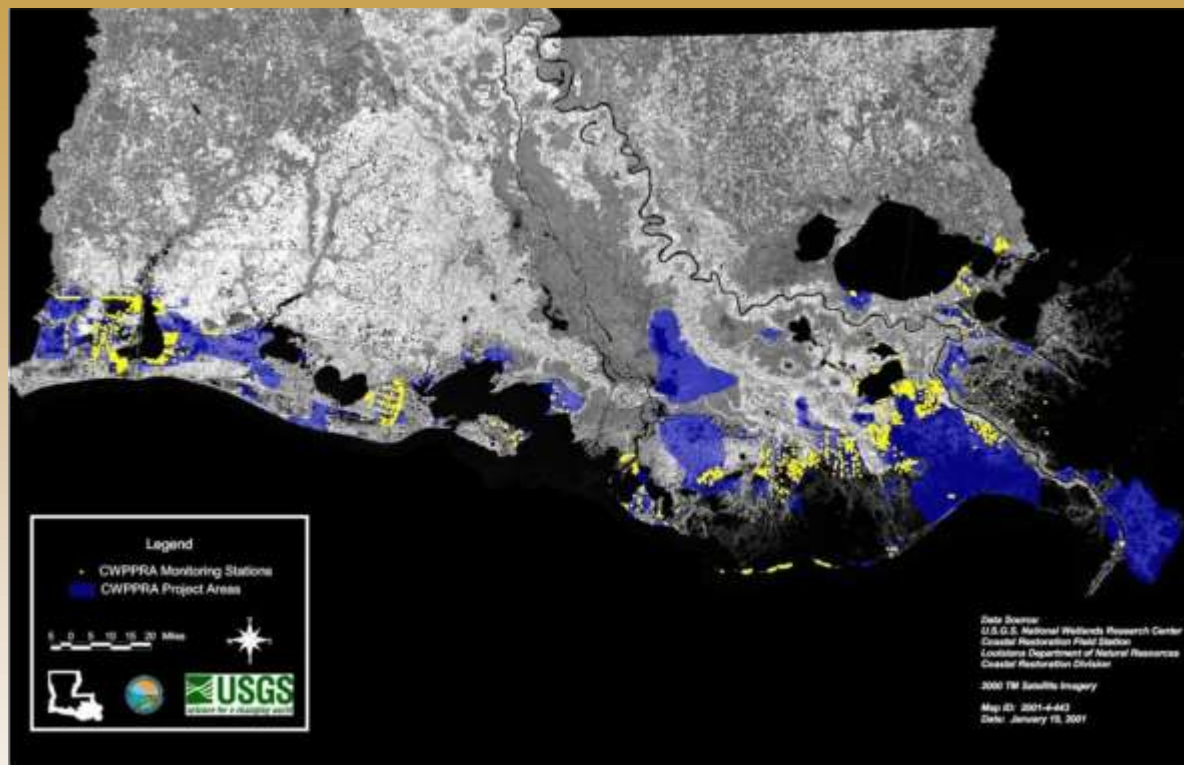


October 2014

<http://www.lacoast.gov/crms>

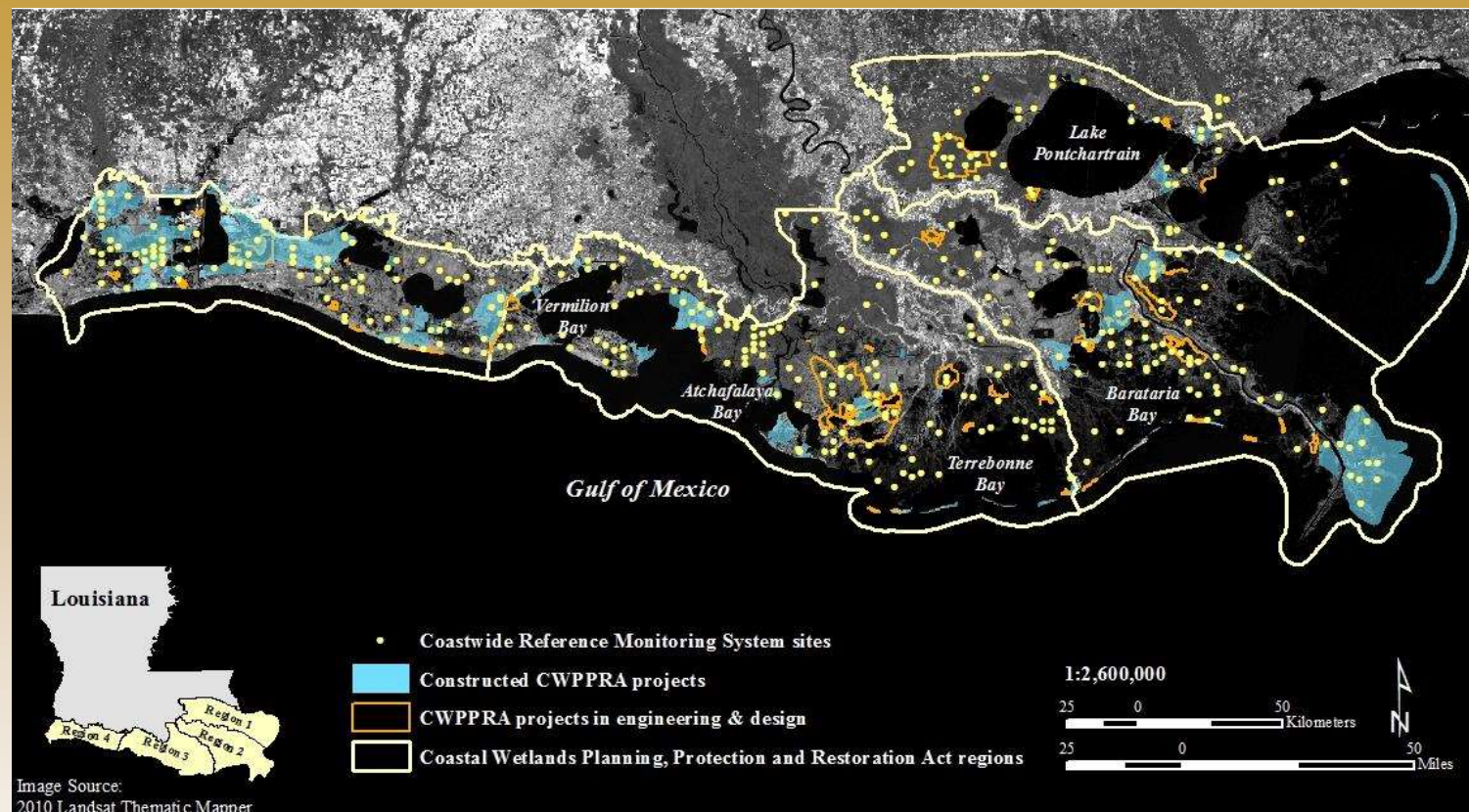


Coastwide Reference Monitoring System – *Wetlands* CWPPRA Restoration Program



Restoration project types: diversions of freshwater and sediments, marsh creation, shoreline protection, sediment and nutrient trapping, hydrologic restoration, and vegetation planting

- CWPPRA was congressionally funded in 1990 and mandated 20 years of restoration project monitoring
- CWPPRA program uses multiple restoration techniques
 - size and types of projects vary
- Initially the program used paired project and reference sites
 - with time, difficult to find “uninfluenced” reference
- Inconsistent monitoring variables and collection frequencies across projects with short data records



- To improve our ability to determine the effectiveness of individual coastal restoration projects.
- Provide information to evaluate coastal wetlands at the project, basin, and coastwide scales.
- To determine the ecological condition of coastal wetlands to ensure that the strategic coastal planning for Louisiana (Coast 2050, LCA, Louisiana Master Plan) is effective in recreating a sustainable coastal ecosystem.



Coastwide Reference Monitoring System – *Wetlands*

CRMS Design and Assessment

- Funded by CWPPRA in 2003

- ~ 390 CRMS sites

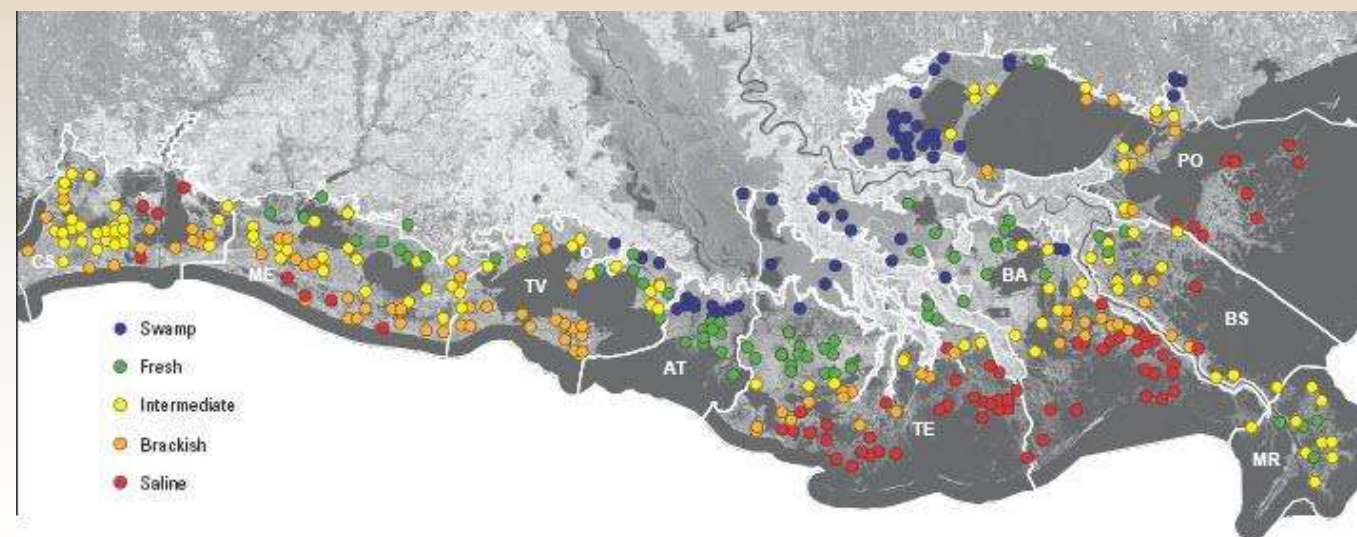
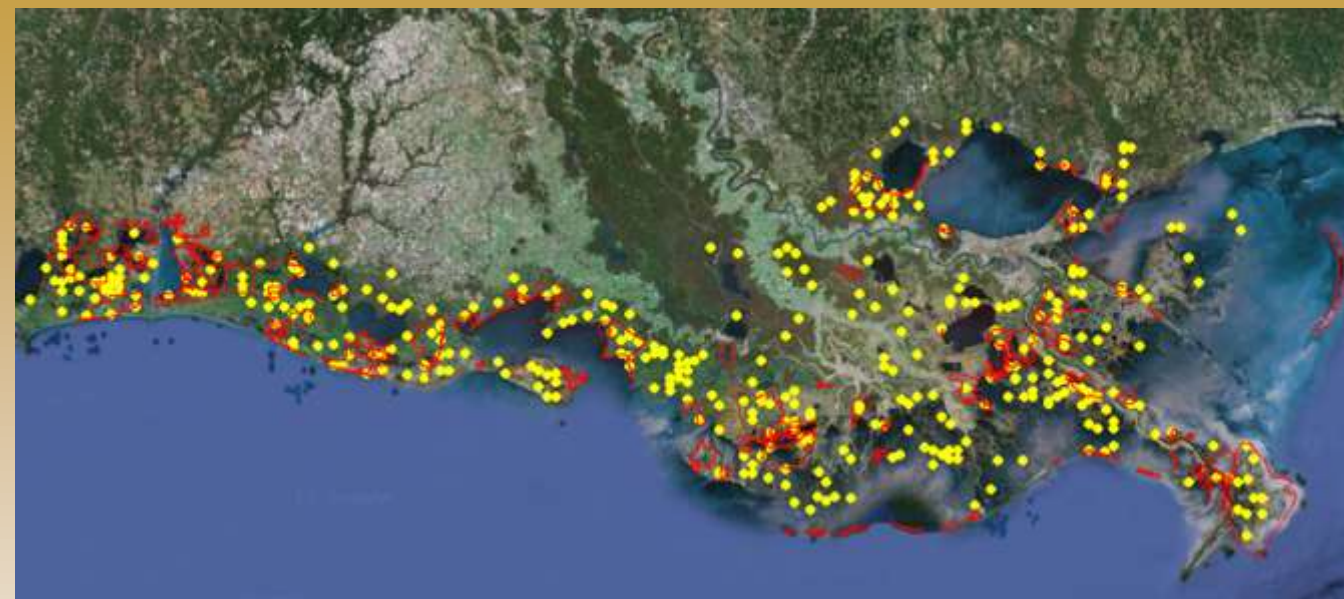
- Long-term dataset (2006-2019)

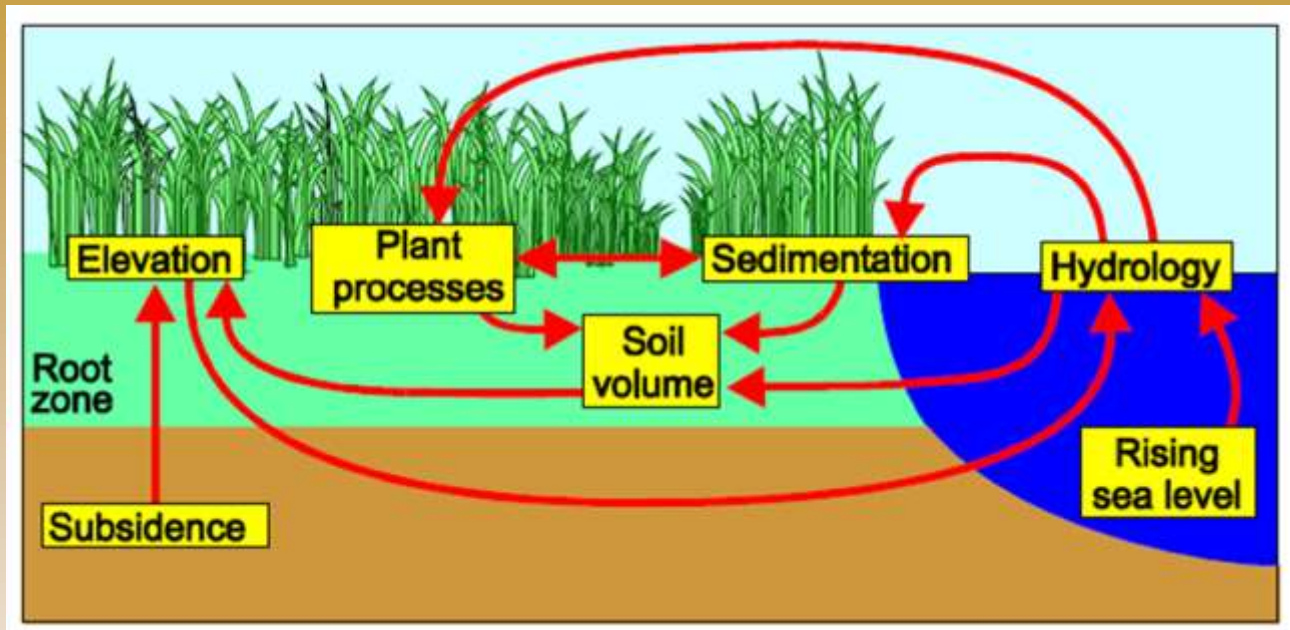
- Sites inside & outside of CWPPRA projects

- Sites in swamp, fresh, intermediate, brackish, and salt marsh

- Allows for multi-scale assessments through CRMS report cards

- Data used for future scenario modeling





Questions to address through CRMS:

Did the restoration program:

- reduce coastal wetland loss?
- sustain a diversity of vegetation types within basins?

Is the restoration program effective in reducing major stressors on wetlands (i.e., flooding regime, salinity, elevation change)?

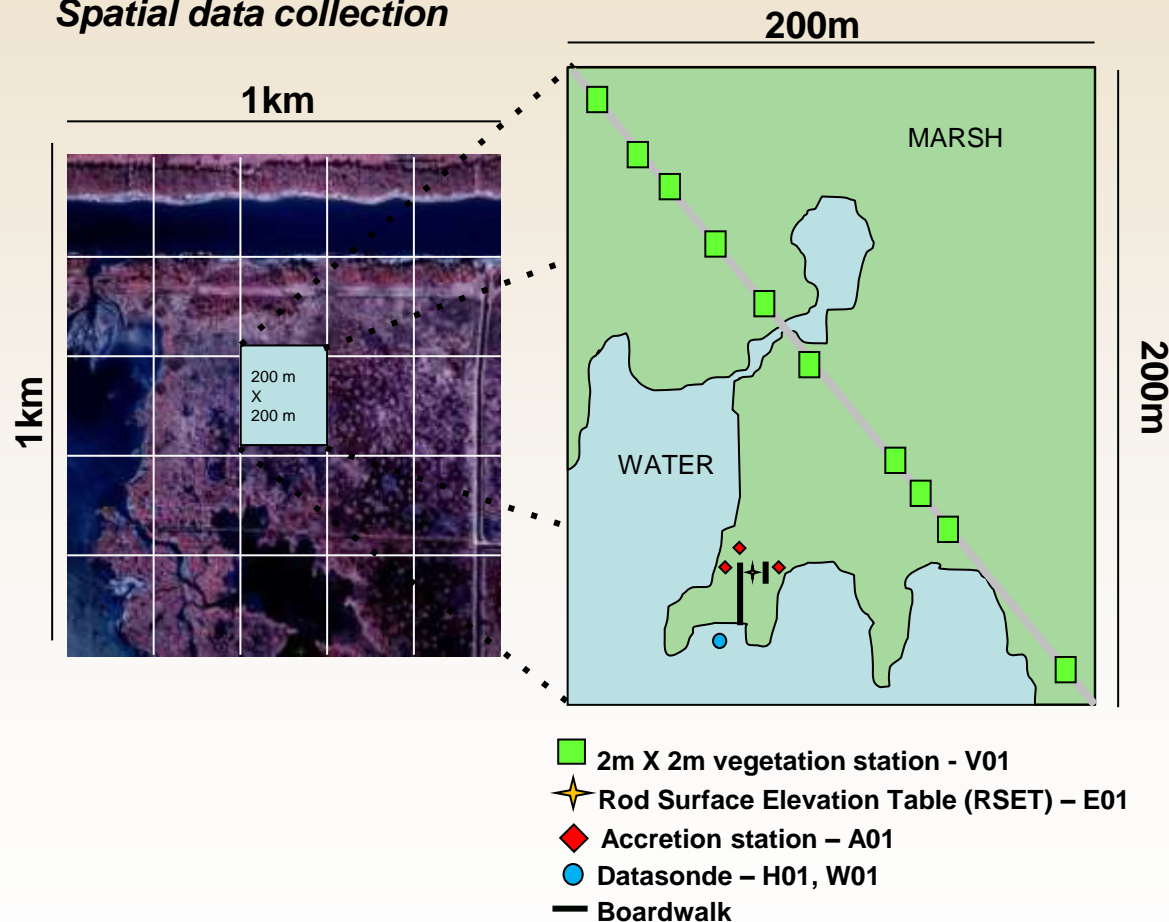
Which project types are the most effective in creating, restoring, protecting and enhancing wetlands?



Coastwide Reference Monitoring System – Wetlands Site Design

Non-spatial data collection

Spatial data collection



Typical Marsh Site



Typical Swamp Site

CRMS Site vs. CRMS Station



Coastwide Reference Monitoring System – *Wetlands* Site Data Collection

Aerial photo

2005

2008

1km² scale:

High resolution aerial photography based land:water analyses to investigate land change through time.

200m² scale: Field data collection using standardized data collection protocols and consistent sampling intervals





Coastwide Reference Monitoring System – *Wetlands* Site Layout





Coastwide Reference Monitoring System – *Wetlands* Site Data Collection

Data Type	Parameter	Method	Scale	Frequency
Land change	Land:Water Ratio	Satellite Imagery	Hydrologic Basin	3 years
	Land:Water Ratio	Digital Aerial Photography	CRMS Site (1 km ²)	3 years
Vegetation	Emergent Vegetation	Braun Blanquet: % Cover, Species Richness, Height of Dominant Species	(10) 2m x 2m plots per marsh site or (9) plots per swamp sites	Annually during peak biomass
	Forested Vegetation	DBH, Canopy Cover, Understory veg	(3) 20m x 20m Forested plots & (9) 6m X6m Understory plots per site	3 yrs during peak biomass
Soils	Soil Characteristics	Core samples profiled into 4 cm increments to 24 cm. Bulk Density, OM%, Soil Salinity, pH, and Moisture.	3 cores, 18 archived samples per site	6 to 10 years
	Vertical Accretion	Feldspar Plots/Cryogenic Cores	3 plots per site	Twice per year
	Marsh Elevation Change	Rod Surface Elevation Table (RSET)	4 directions per site	Twice per year
Hydrology	Soil Porewater	10 and 30 cm syringe sippers	3 samples per depth per site and at vegetation plots	Variable and annually
	Surface Water Salinity, Temp and Water Level	Submersible Data Logger	in available water within 200m of CRMS site or in a well	Hourly





Coastwide Reference Monitoring System – Wetlands Analytical Teams


a CWPPRA funded project


Coastwide Reference Monitoring System

Home Data Mapping Library Visualization Program

**Map**




**Data**

**Factsheet**



Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum. Trajectories in reference sites are then compared with project trajectories through time. The approach could serve as a model for evaluating wetland ecosystems.



- State and federal scientists
- Academics
- Computer programmers
- Web developers
- Oversight review-CWPPRA Monitoring Work Group



Coastwide Reference Monitoring System – Wetlands Analytical Teams

a CWPBRA funded project

Coastwide Reference Monitoring System

Home Data Mapping Library Visualization Program

**Map**

**Data**

**Factsheet**

Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

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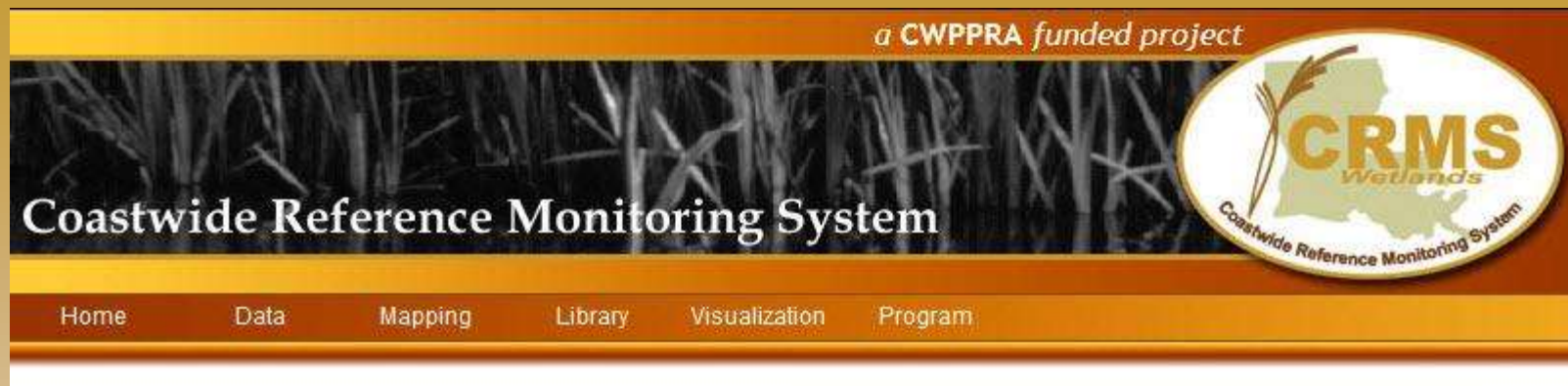


- Provide web mapping viewer
- Summarize and visualize data at multiple scales
- Provide on-the-fly user defined graphics and tools
- Simplify querying and downloading of data
- Develop multi-metric ecological indices
- Develop report card

www.lacoast.gov/crms



Site Overview – Main Menu



Data

- Spatial Data / Tabular SONRIS Data Tool / Tabular CRMS Bulk Download

Mapping

- SONRIS / Basic Map Viewer

Library

- Maps / Presentations / SONRIS Reports / CRMS Reports

Visualization

- Charting / Bulk Charting / Conceptual Models

Program

- Administrative links / Data Citation / Data Descriptions / Publications



a CWPPRA funded project

Coastwide Reference Monitoring System

Home Data Mapping Library Visualization **Program**

CRMS Support Documentation


Administration	Support Docs
Administration	Publications
Data Descriptions	Privacy
	Accessibility
	FOIA
	Disclaimer
	Data Citation

Program menu contains links to:

- **Administrative Information**
 - Supporting or Reference Documents
 - CRMS Related Publications
 - Privacy and Accessibility Statements
 - Freedom of Information Act
 - Data Citation
- **Contacts from both USGS and CPRA**
- **Data Description Information**
 - Includes analytical framework documents
 - Report card analysis explanations



New Page: CRMS Publication Page

Home	Data	Mapping	Library	Visualization	Program
CRMS Publications				Administration	Support Docs
				Contacts	Publication 
				Data Descriptions	Privacy
					Accessibility
					FOIA
					Disclaimer
					Data Citation

Couvillion, B.R. and H. Beck. 2013. [Marsh Collapse Thresholds for Coastal Louisiana Elevation and Vegetation Index Data](#). *Journal of Coastal Research* 63:58-67

Dietrich, J.C., J.J. Westerink, A.B. Kennedy, J.M. Smith, R.E. Jensen, M. Zulema, L.H. Holthuijsen, C. Dawson, R.A. Luettich, Jr., M.D. Powell, V.J. Cardone, A.T. Cox, G.W. Stone, H. Pourtaheri, M.E. Hope, S. Tanaka, L.G. Westerink, H.J. Westerink, and Z. Cobell. 2011. [Hurricane Gustav \(2008\) Waves and Storm Surge: Hindcast, Synoptic Analysis, and Validation in Southern Louisiana](#). *Monthly Weather Review* 139:2488-2522.

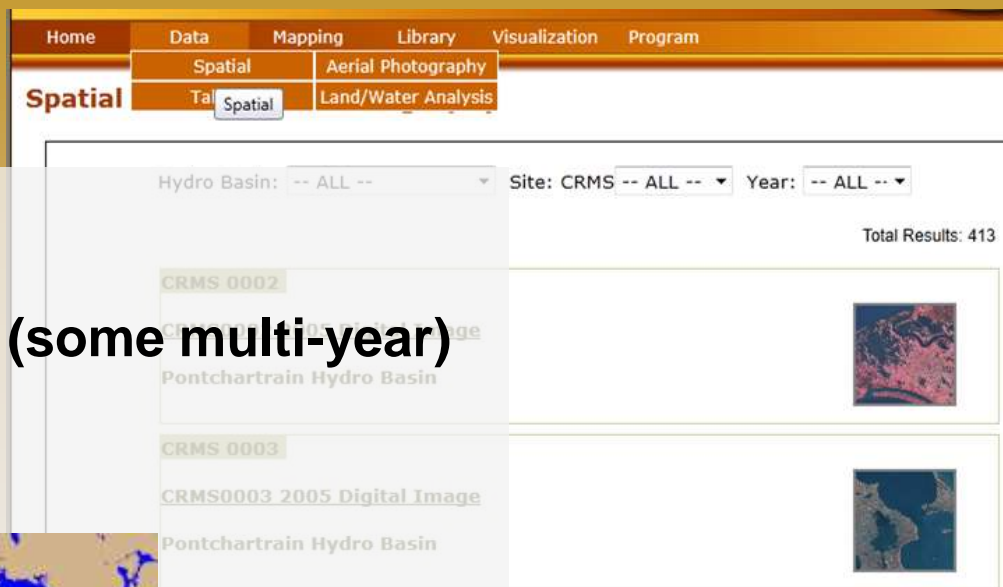
Green, C.C., W.E. Kelso, M.D. Kaller, K.M. Gautreaux, and D.G. Kelly. 2012. [Potential for naturalization of nonindigenous *Tilapia Oreochromis* sp. in coastal Louisiana marshes based on integrating thermal tolerance and field data](#). *Wetlands* 32:717-723.

Honig, Aaron. 2013. [Population Ecology of the Ribbed Mussel in Southeastern Louisiana](#). Louisiana State University Thesis 54p.

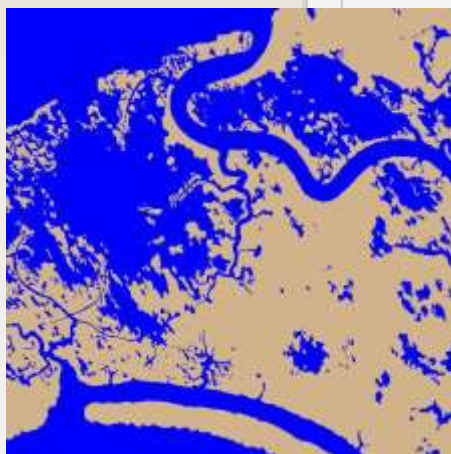
Hope, M.E., J.J. Westerink, A.B. Kennedy, P.C. Kerr, J.C. Dietrich, C. Dawson, C.J. Bender, J.M. Smith, R.E. Jensen, M. Zijlema, L.H. Holthuijsen, R.A. Luettich Jr., M.D. Powell, V.J. Cardone, A.T. Cox, H. Pourtaheri, H.J. Roberts, J.H. Atkinson, S. Tanaka, H.J. Westerink, L.G. Westerink. 2013. [Hindcast and validation of Hurricane Ike \(2008\) waves, forerunner, and storm surge](#). *Journal of Geophysical Research: Oceans* 118:4424-4460.

Kang, S.R. and S.L. King. 2013. [Effects of hydrologic connectivity and environmental variables on nekton assemblages in a coastal marsh system](#). *Wetlands* 33:321-334.

Kang, S.R. and S.L. King. 2013. [Effects of hydrologic connectivity on pond environmental characteristics](#)



- Data menu contains links to:
 - Spatial Data:
 - Available for each CRMS site (some multi-year)
 - Aerial Mosaic
 - Land/Water Analysis



- Tabular Data
 - Links back to SONRIS data download tools
 - CRMS bulk data download tools



• **CRMS bulk data download**
All values for selected years, for
selected stations(queue processes first
come first serve)



- Hydro
 - Hydro Averages
 - Hydro Index
 - Percent Flooded
 - Water Level Range
- Vegetation
 - Basal Area
 - Floristic Quality Index
 - Marsh Class
 - Veg Percent Cover
- Soil
 - Calculated Elevation Change
 - Submergence Vulnerability Index
 - Surface Elevation/Accretion
- Spatial
 - Percent Land
 - 1km Land/Water Difference

Previous Charting Version

Charting Bulk Charting **Data Download** Reporting

Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database ([SONRIS](#))

Water Year is October 1 - September 30

Yearly

Calendar Year

Year:

Select All	Deselect All
1987	1994
1992	1995
1993	1999
1996	
1997	
1998	
2000	
2001	
2002	

Submit

Basin: Project:

Select All	Deselect All
BA01-01	
BA01-02	
BA01-03	
BA01-04	
BA01-07	
BA01-08	
BA01-09	
BA01-10	
BA01-14	

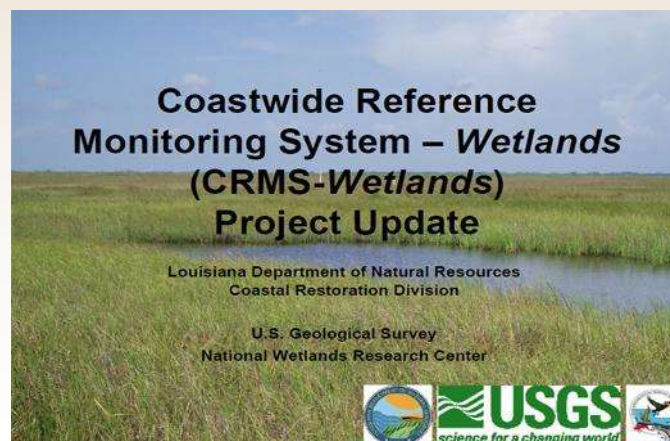
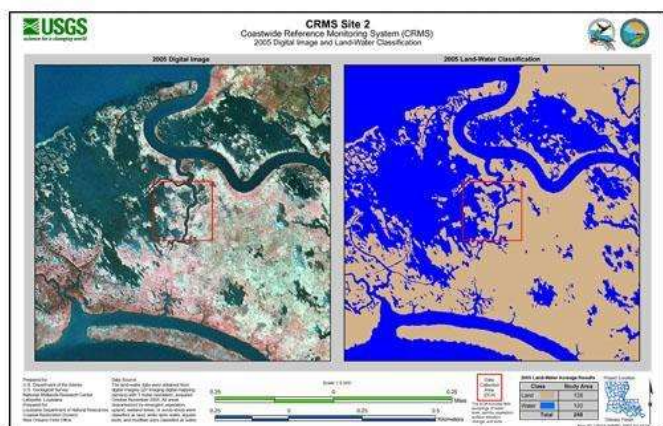
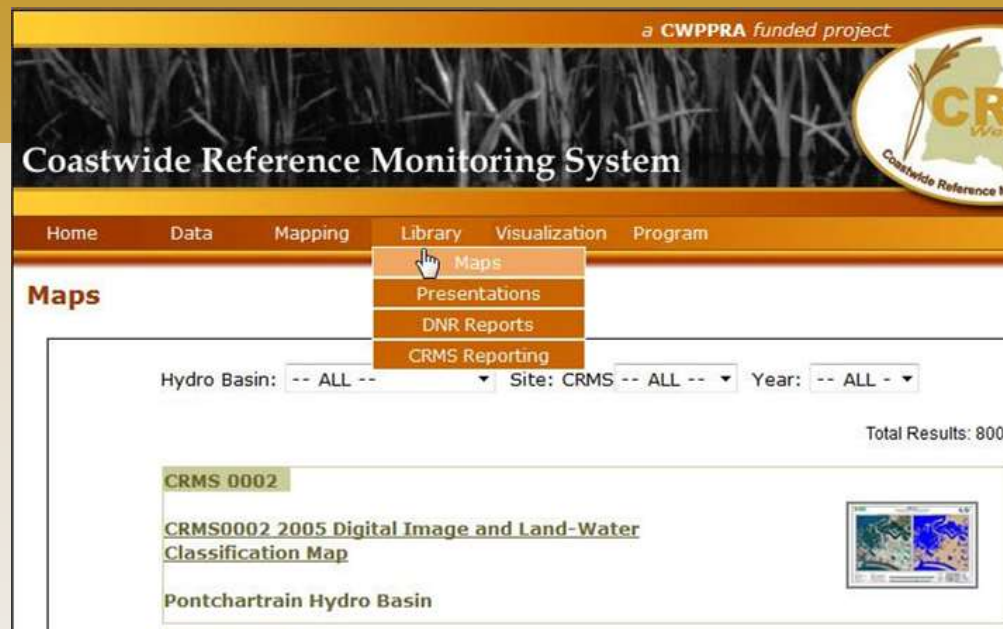
[Show Map Selector](#) Email Address:

Submit Request



Library menu contains links to:

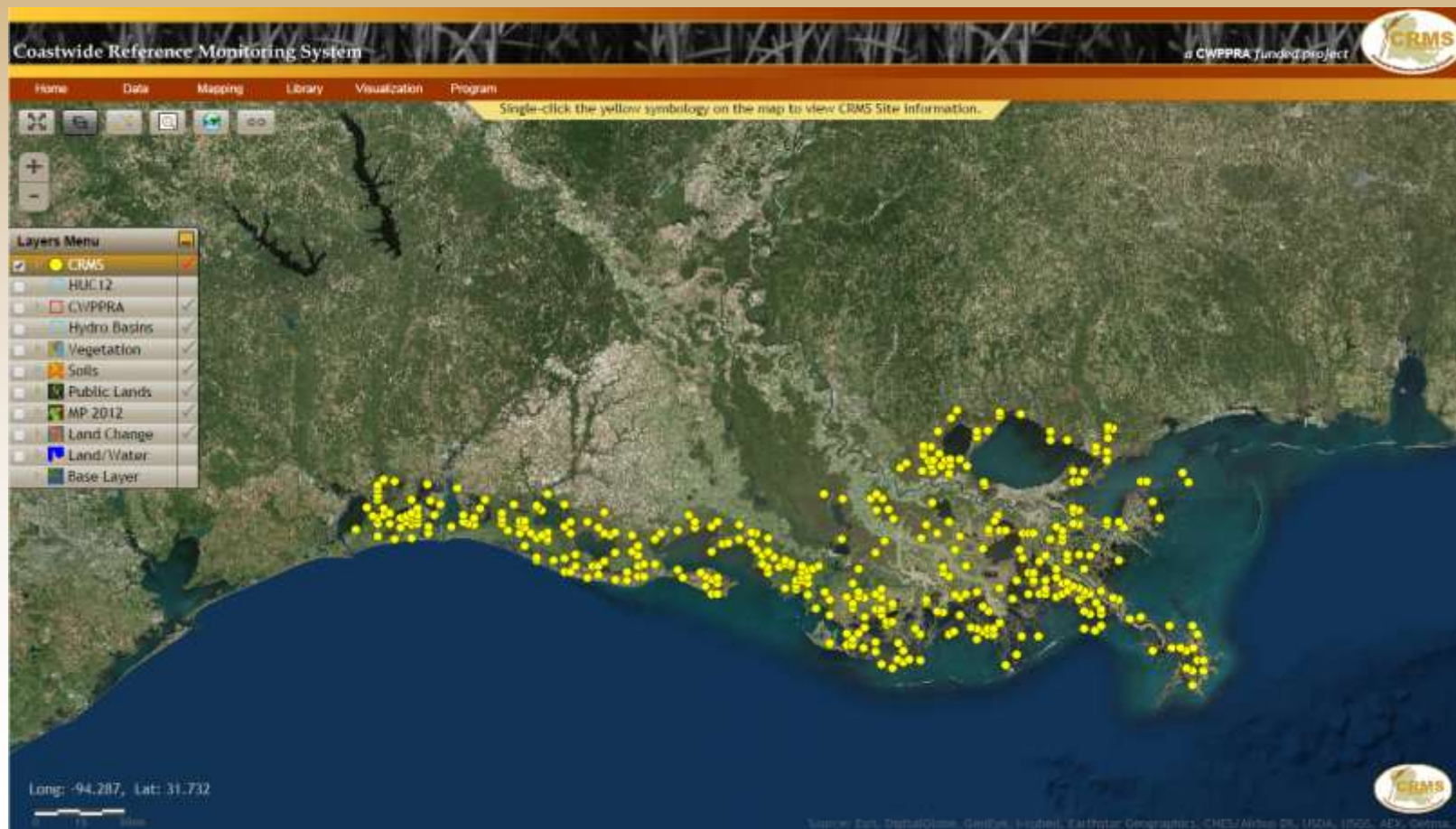
- Maps: Available for each CRMS site (some multi-year)
- Presentations
- Reports (via SONRIS)
- CRMS Report Card





Mapping menu contains links to:

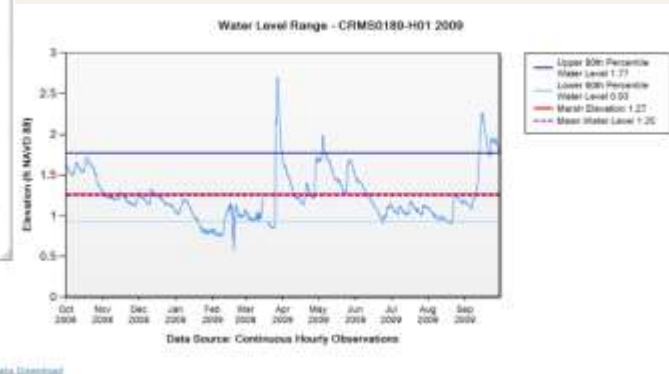
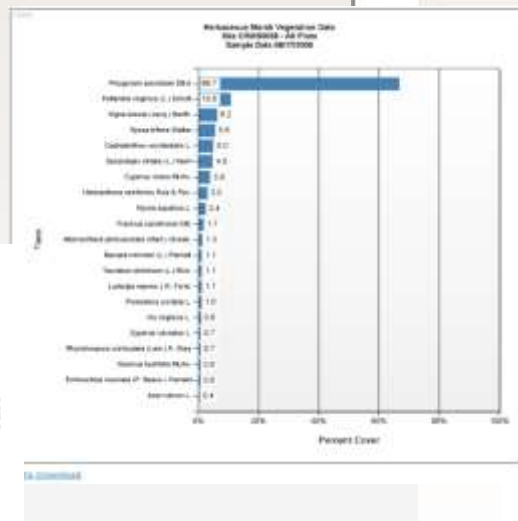
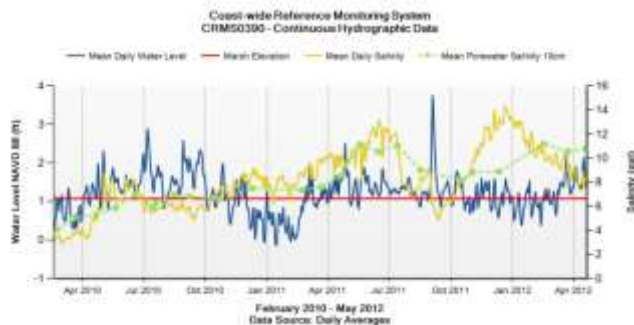
- SONRIS Viewer
- Basic Map Viewer



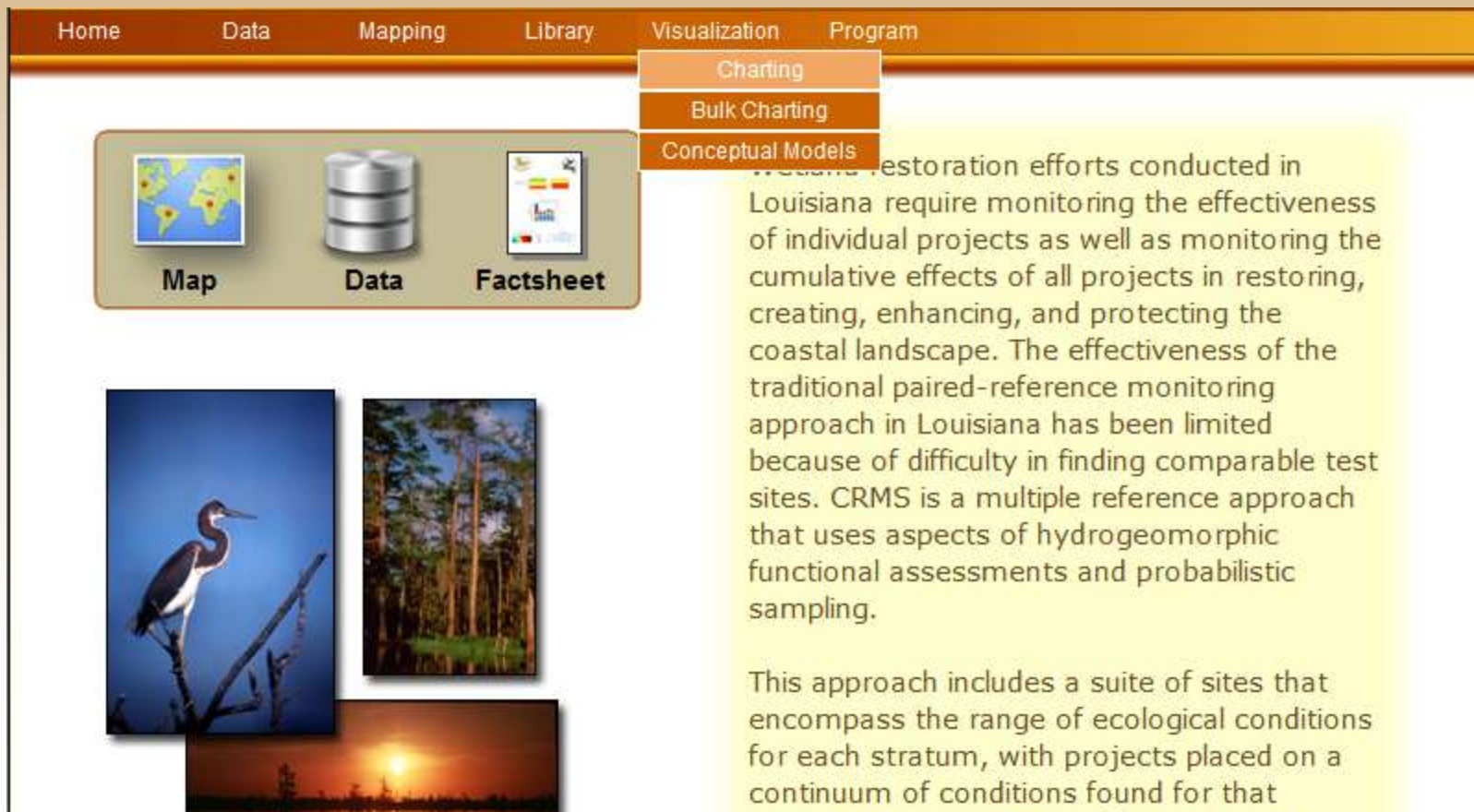


Visualization menu contains links to:

- **Charts...Lots of Charts.**
 - Surface Elevation/Accretion
 - % Organic / Bulk Density
 - Vegetation
 - Forested
 - Porewater
 - Hydrographic (Salinity, Temp, Water Level)
 - Precipitation
 - Report Card



Using the charting interface

The screenshot shows the CRMS web application interface. At the top is a navigation bar with tabs: Home, Data, Mapping, Library, Visualization, and Program. The "Visualization" tab is selected, and a dropdown menu is open showing "Charting", "Bulk Charting", and "Conceptual Models". Below the navigation bar, there are three main sections: "Map" (with a world map icon), "Data" (with a database cylinder icon), and "Factsheet" (with a document icon). To the right of these icons, there is a large text area containing information about wetland restoration efforts in Louisiana. At the bottom left, there are three small images: a bird perched on a branch, a forest scene, and a sunset over water.

Home Data Mapping Library Visualization Program

Charting
Bulk Charting
Conceptual Models

Map Data Factsheet

Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

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Charting Usage

Previous Charting Version

Charting Bulk Charting Data Download Reporting

Hydro

- Water Level Range
- Hydro Completeness
- Salinity**
- Water Level
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater
- Precipitation

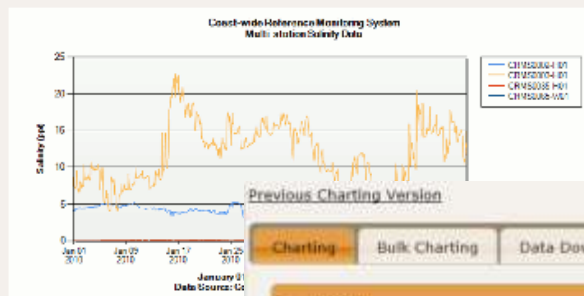
Vegetation

Soil

Spatial

Report Card Charts

Clear Charts



Previous Charting Version

Charting Bulk Charting Data Download Reporting

Hydro

- Water Level Range
- Hydro Completeness**
- Salinity
- Water Level
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater
- Precipitation

Vegetation

Charting Bulk Charting Data Download Reporting

Hydro

- Water Level Range
- Hydro Completeness
- Salinity
- Water Level
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater**
- Precipitation

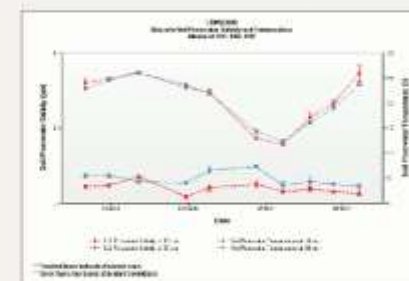
Vegetation

Soil

Spatial

Report Card Charts

Clear Charts





1. Pick a Data Category

1. Hydro

2. Pick a Parameter

1. Salinity

[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

▼ Hydro

Water Level Range
Hydro Completeness
Salinity
Water Level
Temperature
Continuous
Site Hydro Index
Soil Porewater
Precipitation

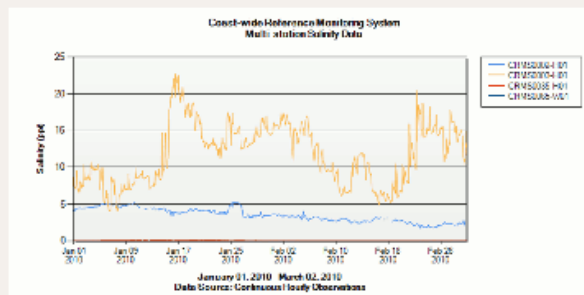
▶ Vegetation

▶ Soil

▶ Spatial

▶ Report Card Charts

Clear Charts





1. Pick a Data Category
 1. Hydro
2. Pick a Parameter
 1. Salinity
3. Pick a Scale
 1. Station
4. Enter Start / End Dates
 1. 1/1/2001
 2. 12/31/2011
 3. Apply Date Filter

[Previous Charting Version](#)

Charting Bulk Charting Data Download Reporting

▼ Hydro

- Water Level Range
- Hydro Completeness
- Salinity**
- Water Level
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater
- Precipitation

Interactive Hydro

► Vegetation

► Soil

► Spatial

► Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Station ▼

Date Range:
2/25/1987 - 3/11/2014

Min Date: 01/01/2001

Max Date: 12/31/2011

Apply Date Filter

◀ Dec ▼ 2011 ▶

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



1. Pick a Data Category

1. Hydro

2. Pick a Parameter

1. Salinity

3. Pick a Scale

1. Site

4. Enter Start / End Dates

1. 1/1/2001

2. 12/31/2011

3. Apply Date Filter

5. Pick Site

[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

▼ Hydro

Water Level Range

Hydro Completeness

Salinity

Water Level

Temperature

Continuous

Site Hydro Index

Soil Porewater

Precipitation

Interactive Hydro

▶ Vegetation

▶ Soil

▶ Spatial

▶ Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Station

Date Range:
2/25/1987 - 3/11/2014

Min Date: 01/01/2001

Max Date: 12/31/2011

Apply Date Filter

☐ Mean annual salinity

☐ Mean growing season salinity

CRMS0153-H01

CRMS0154-H01

CRMS0156-H01

CRMS0157-H01

CRMS0159-H01

CRMS0161-H01

CRMS0162-H01

CRMS0163-H01

CRMS0164-H01

CRMS0171-H01

☐ Include major weather\storm events

[Show Map Selector](#)

Submit Request



1. Pick a Data Category
 1. Hydro
2. Pick a Parameter
 1. Salinity
3. Pick a Scale
 1. Site
4. Enter Start / End Dates
 1. 1/1/2001
 2. 12/31/2011
 3. Apply Date Filter
5. Pick Site

[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

Hydro

Water Level Range

Hydro Completeness

Salinity

Water Level

Temperature

Continuous

Site Hydro Index

Soil Porewater

Precipitation

Interactive Hydro

Vegetation

Soil

Spatial

Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Station

Date Range:
2/25/1987 - 3/11/2014

Min Date: 01/01/2001

Max Date: 12/31/2011

Apply Date Filter

☐ Mean annual salinity

☐ Mean growing season salinity

CRMS0154-H01

CRMS0156-H01

CRMS0157-H01

CRMS0159-H01

CRMS0161-H01

CRMS0162-H01

CRMS0163-H01

CRMS0164-H01

CRMS0171-H01

CRMS0172-H01

☐ Include major weather\storm events

Show Map Selector

Submit Request

Salinity

Salinity (ppt)

Jan 2007

May 2008

Oct 2008

May 2010

Nov 2011

June 28 2007 - December 28 2011

CRMS0156-H01

CRMS0154-H01

CRMS0157-H01

CRMS0159-H01

CRMS0161-H01

CRMS0162-H01

CRMS0163-H01

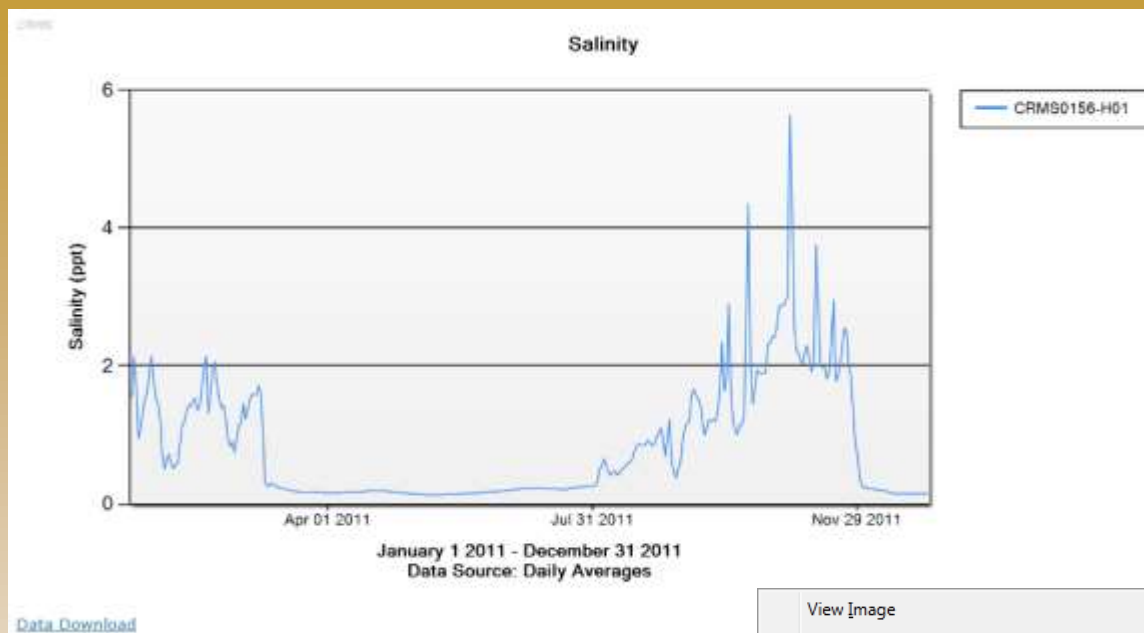
CRMS0164-H01

CRMS0171-H01

CRMS0172-H01



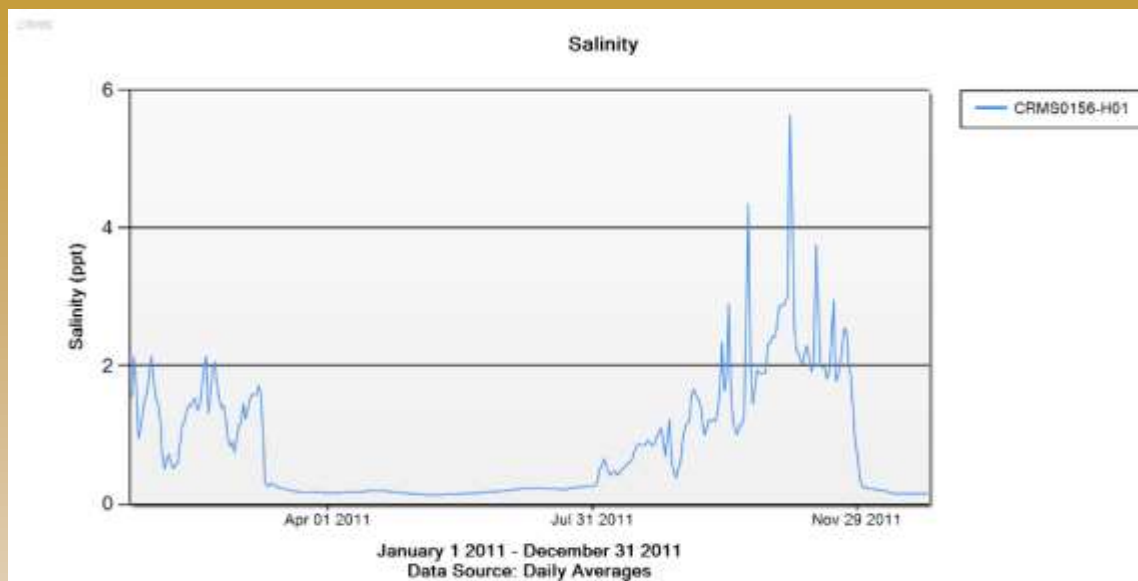
1. Pick a Data Category
 1. Hydro
2. Pick a Parameter
 1. Salinity
3. Pick a Scale
 1. Site
4. Enter Start / End Dates
 1. 1/1/2001
 2. 12/31/2011
 3. Apply Date Filter
5. Pick Site
6. View Chart
7. Save Chart Image
8. Download Data (optional)



- View Image
- Copy Image
- Copy Image Location
- Save Image As...**
- Send Image...
- Set As Desktop Background...
- View Image Info
- Copy
- Search Google for "Home Data Mappi..."
- View Selection Source
- Convert Selection to Adobe PDF
- Append Selection to Existing PDF
- Inspect Element with Firebug
- Adblock Plus: Block image...



1. Pick a Data Category
 1. Hydro
2. Pick a Parameter
 1. Salinity
3. Pick a Scale
 1. Site
4. Enter Start / End Dates
 1. 1/1/2001
 2. 12/31/2011
 3. Apply Date Filter
5. Pick Site
6. View Chart
7. Save Chart Image
8. Download Data (optional)



[Data Download](#)

	A1	Station_ID			
	A	B	C	D	E
	Station_ID	MonDate	Salinity	Water_Level	Water_Temperature
1	CRMS0156-H01	1/1/2011 0:00	1.560417	1.8325	9.65125
2	CRMS0156-H01	1/2/2011 0:00	2.130833	1.62625	12.42083
3	CRMS0156-H01	1/3/2011 0:00	1.746667	1.434167	8.210417
4	CRMS0156-H01	1/4/2011 0:00	0.95375	1.350417	7.404583
5	CRMS0156-H01	1/5/2011 0:00	1.085833	1.344167	7.54125
6	CRMS0156-H01	1/6/2011 0:00	1.333333	1.408333	7.622083
7	CRMS0156-H01	1/7/2011 0:00	1.514583	1.237083	7.506667
8	CRMS0156-H01	1/8/2011 0:00	1.60125	1.127917	7.66375
9	CRMS0156-H01	1/9/2011 0:00	1.908333	1.9775	8.087916
10	CRMS0156-H01	1/10/2011 0:00	2.137083	1.900417	11.25458
11	CRMS0156-H01	1/11/2011 0:00	1.789583	1.528333	8.947917
12	CRMS0156-H01	1/12/2011 0:00	1.529583	1.18125	6.955
13	CRMS0156-H01	1/13/2011 0:00	1.455417	1.05125	6.779583
14	CRMS0156-H01	1/14/2011 0:00	1.21125	0.9725	6.984583
15	CRMS0156-H01	1/15/2011 0:00	0.7083333	1.16	6.829583



Multi-Station Charting

1. Pick a Data Category
 1. Hydro
2. Pick a Parameter
 1. Water Level
3. Pick a Scale
 1. Multi Station
4. Enter Start / End Dates
 1. 1/1/2001
 2. 12/31/2011
 3. Apply Date Filter
5. Pick Stations

Previous Charting Version

Charting Bulk Charting Data Download Reporting

▼ Hydro

- Water Level Range
- Hydro Completeness
- Salinity
- Water Level**
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater
- Precipitation

Interactive Hydro

▶ Vegetation

▶ Soil

▶ Spatial

▶ Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Multi Station ▼

Date Range:
2/25/1987 - 3/11/2014

Min Date: 01/01/2001

Max Date: 12/31/2005

Apply Date Filter ⓘ

Basin: Calcasieu/Sabir ▼ Project: All Projects ▼

Selection limited to 10 items

CS20	
CS20-10R	CS20-03
CS20-14R	CS20-07
CS20-15R	CS20-09
	CS20-17

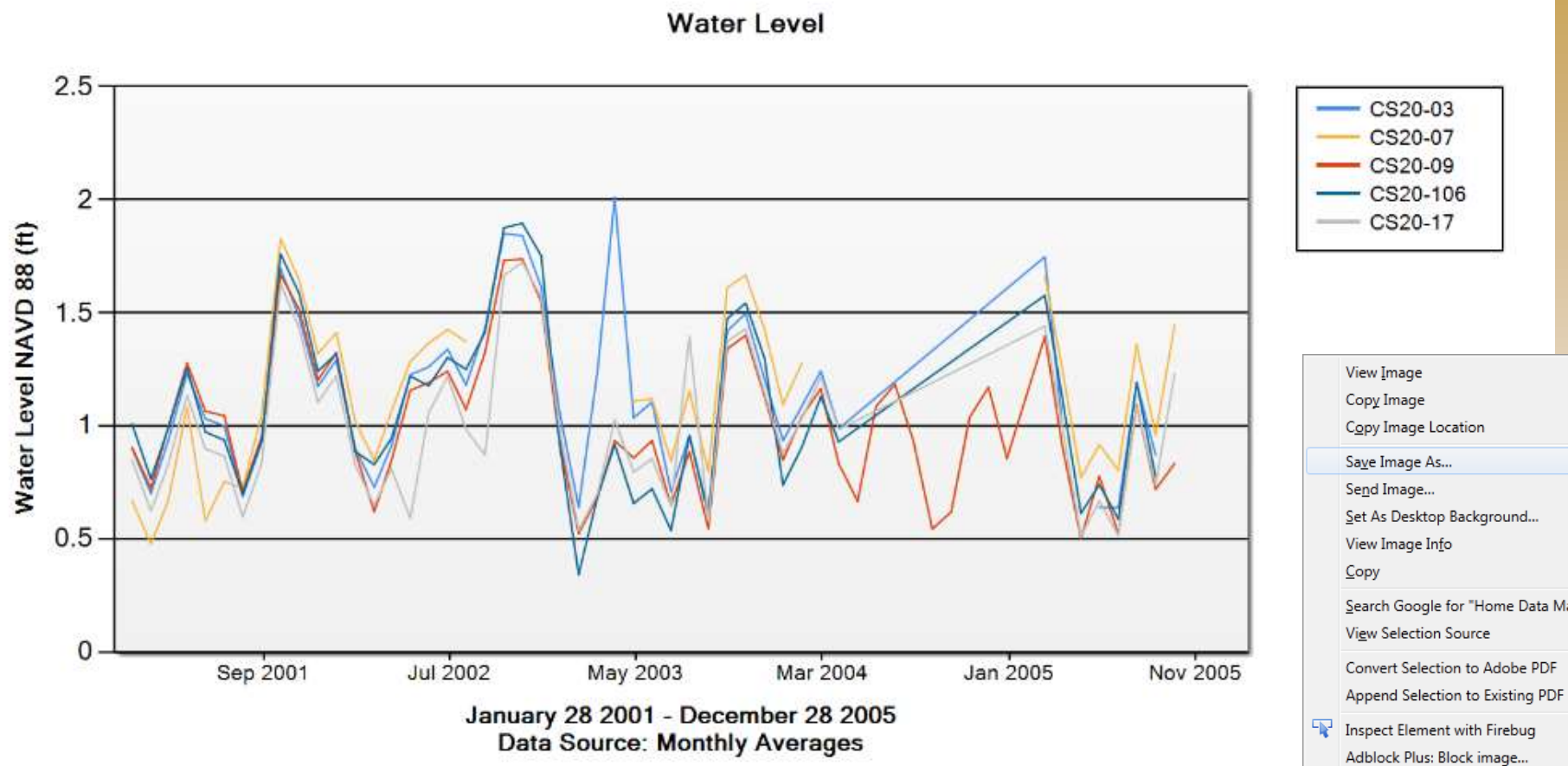
☐ Include major weather/storm events

[Show Map Selector](#)

Submit Request

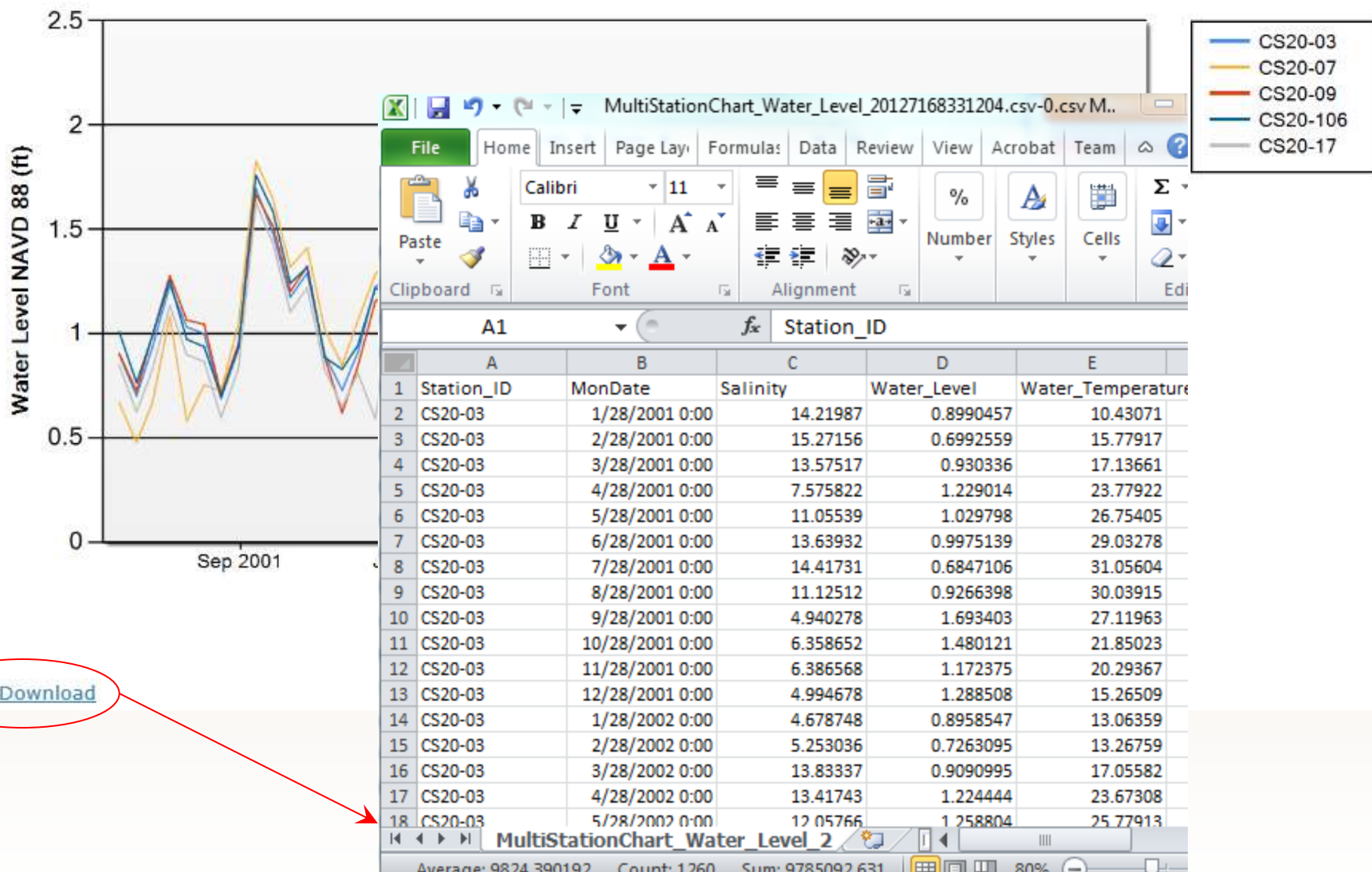
Multi-Station Charting

CRMS



[Data Download](#)

Water Level





Interactive Hydro Chart

Great for hydro data exploration without having to download data.

[Previous Charting Version](#)

Charting Bulk Charting Data Download Reporting

▼ Hydro

- Water Level Range
- Hydro Completeness
- Salinity
- Water Level**
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater
- Precipitation
- Interactive Hydro**

▶ Vegetation

▶ Soil

▶ Spatial

▶ Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Multi Station ▼

Date Range:
2/25/1987 - 3/11/2014

Min Date: 01/01/2001

Max Date: 12/31/2005

Apply Date Filter ⓘ

Basin: Calcasieu/Sabir ▼ Project: All Projects ▼

Selection limited to 10 items

CS20	
CS20-106	CS20-03
CS20-14R	CS20-07
CS20-15R	CS20-09
	CS20-17

☐ Include major weather\storm events

[Show Map Selector](#)

Submit Request



Interactive Hydro Chart – same site with the multiple parameters





Interactive Hydro Chart – multiple sites with the same parameter

Coastwide Reference Monitoring System

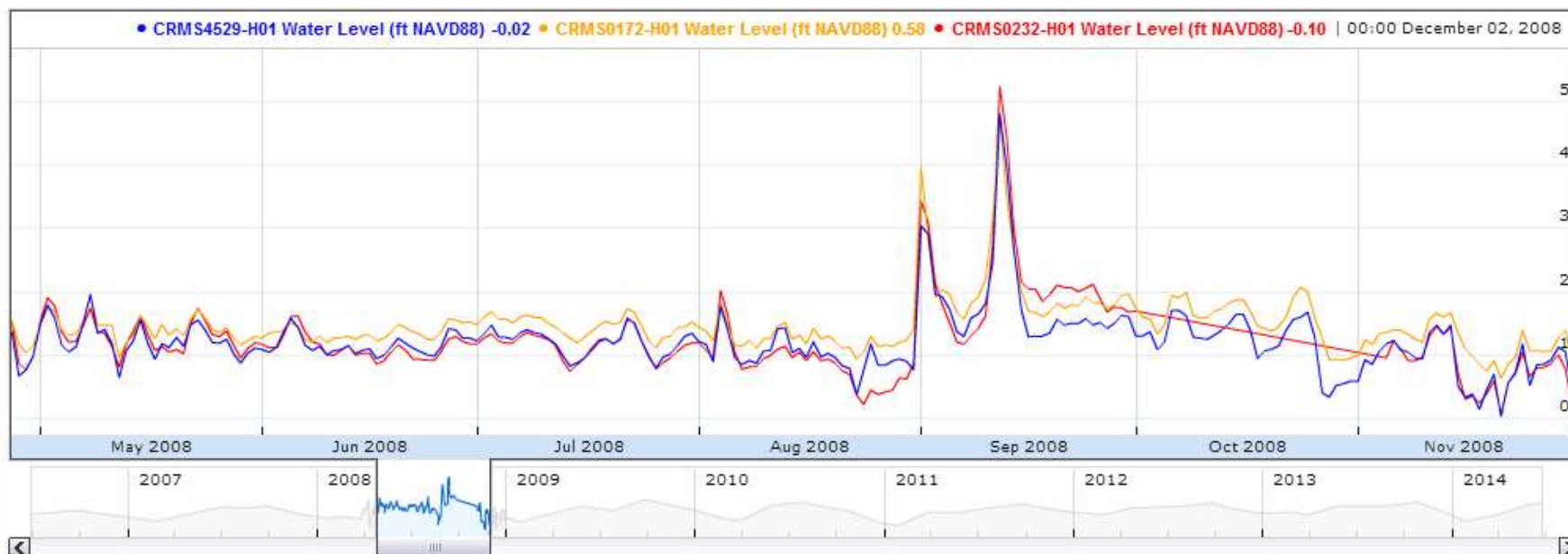
a CWPPRA funded project



Home Data Mapping Library Visualization Program

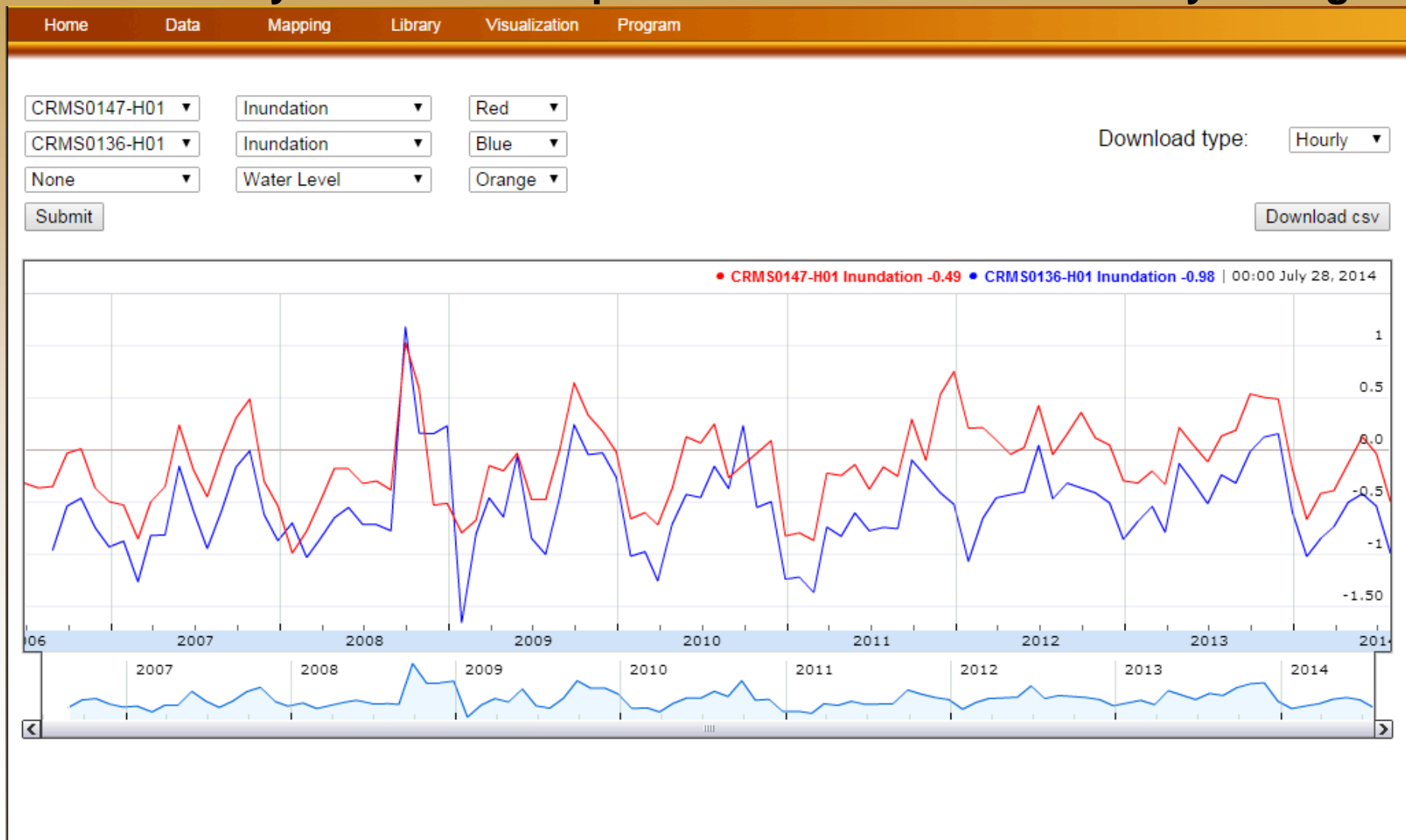
CRMS0232-H01 ▼	Water Level ▼	Red ▼
CRMS4529-H01 ▼	Water Level ▼	Blue ▼
CRMS0172-H01 ▼	Water Level ▼	Orange ▼
<input type="button" value="Submit"/>		

Download type:



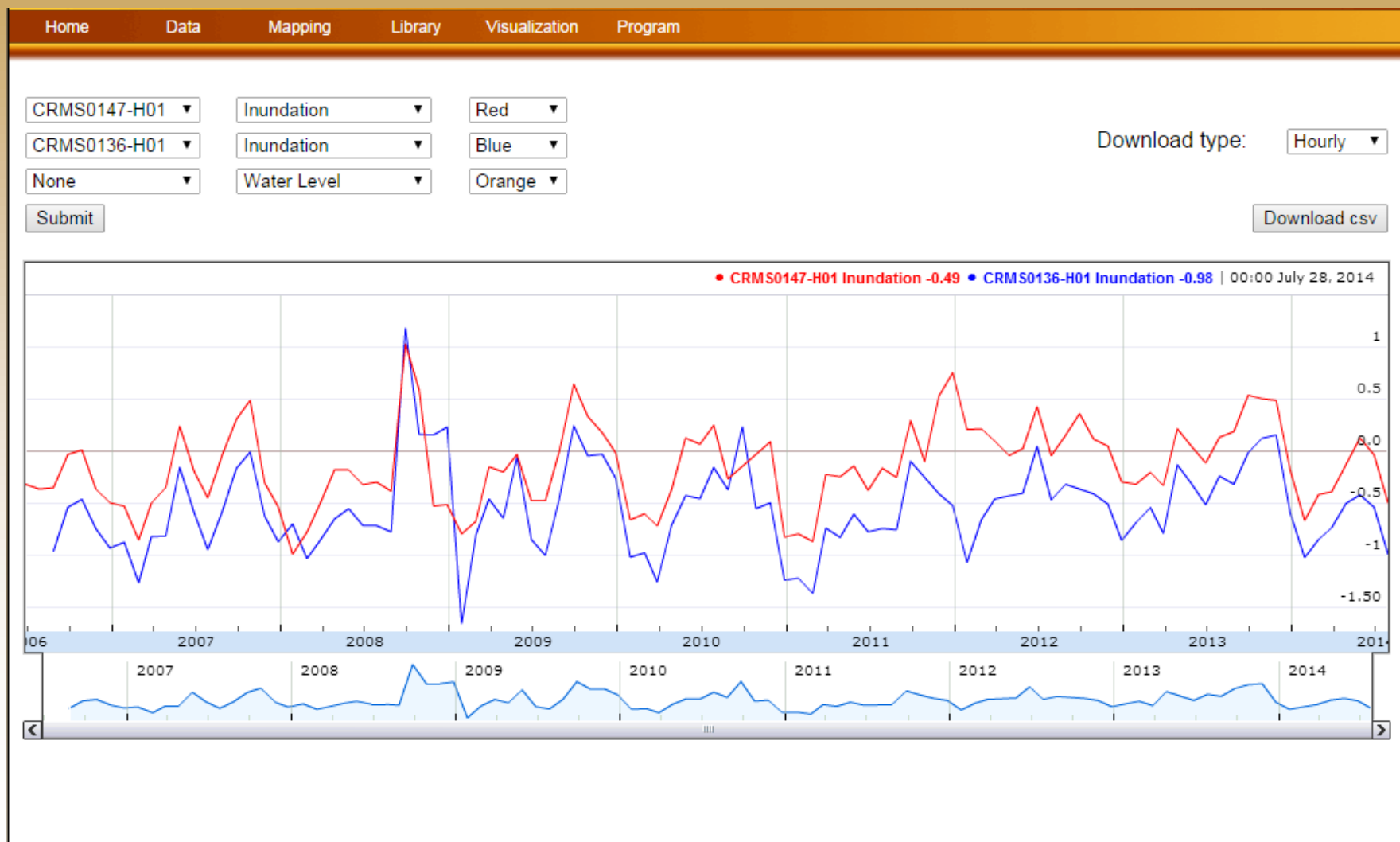


Interactive Hydro Chart – full period of record shows monthly averages



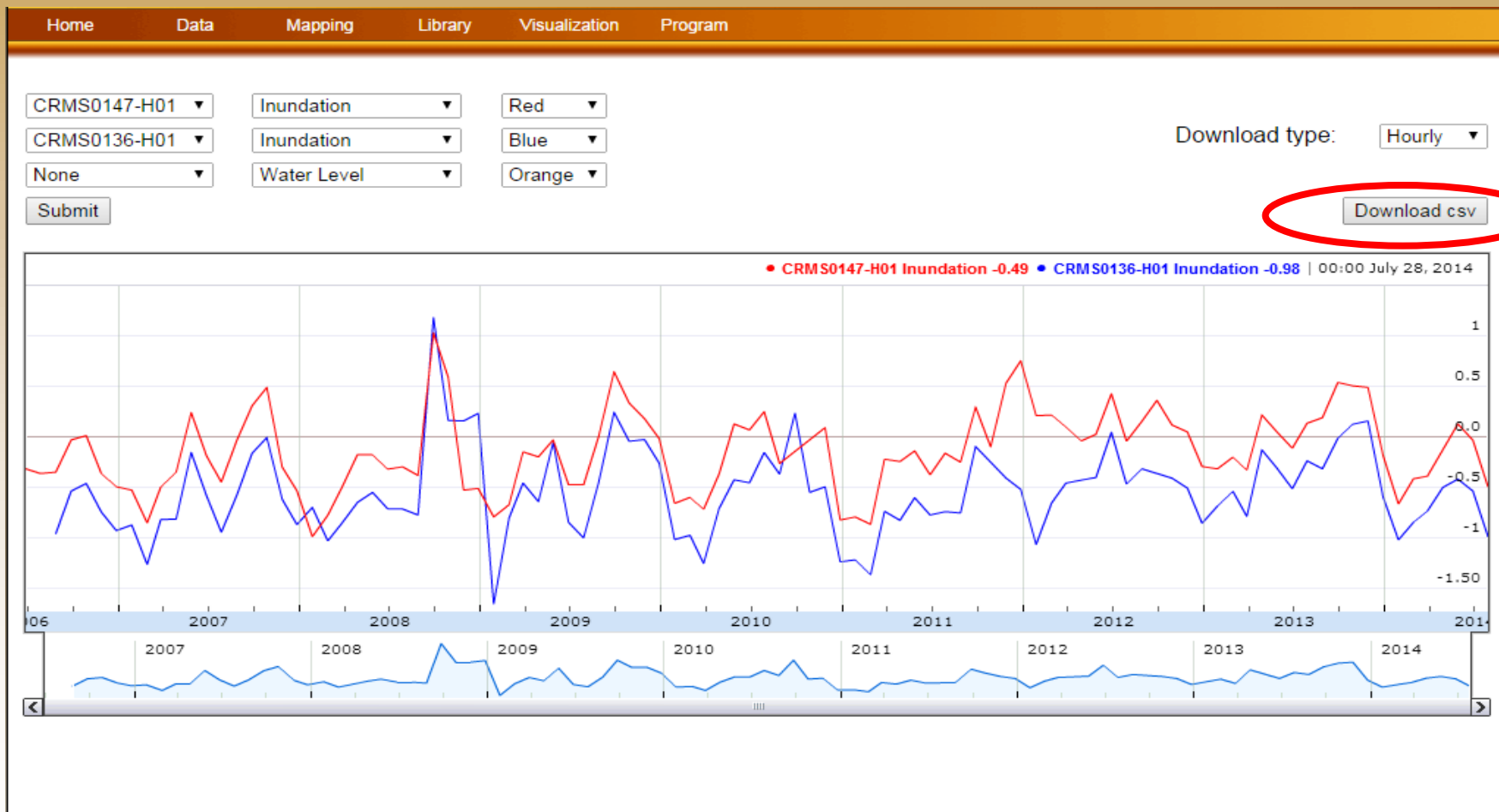


Interactive Hydro Chart – smaller time range increases frequency of visualized data (i.e., hourly vs. monthly)



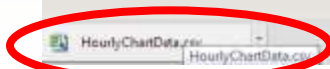
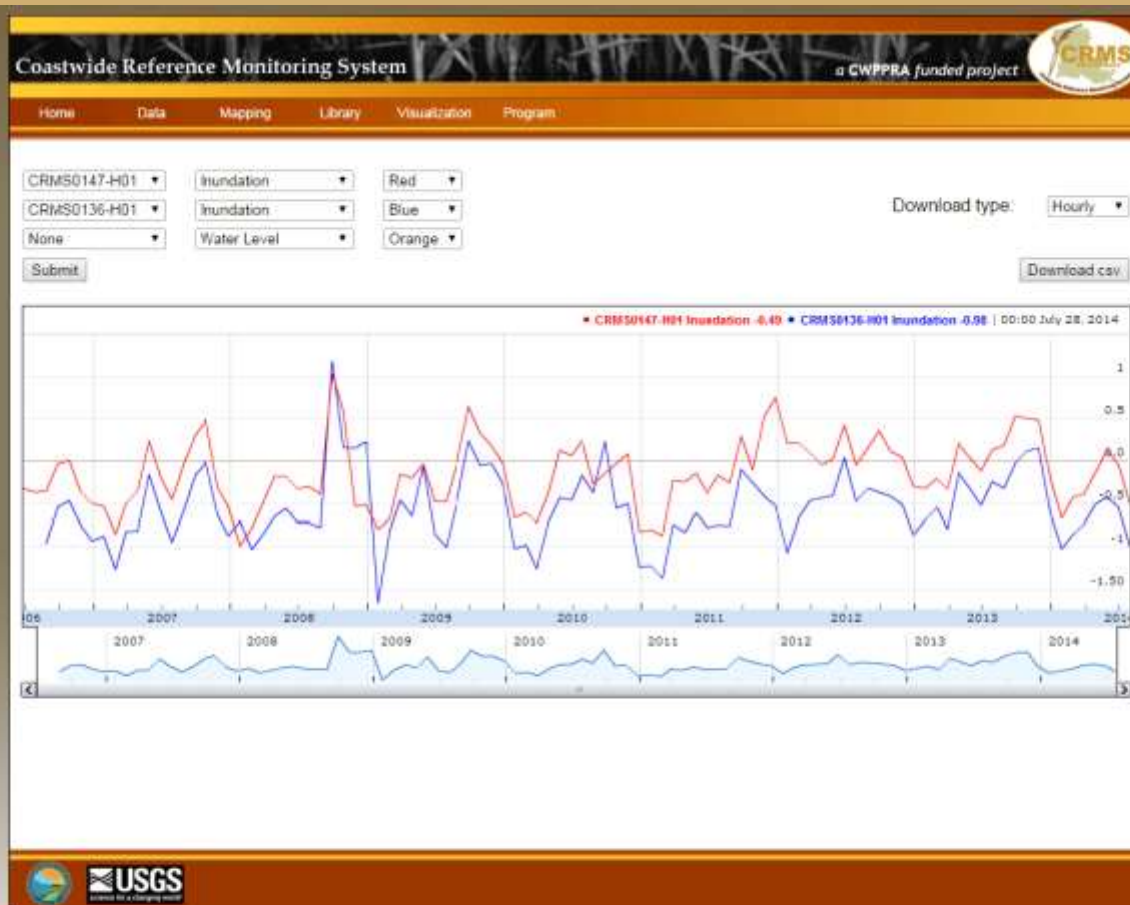


Interactive Hydro Chart – Download a .csv file of the data in the chart. (hourly, daily, monthly)






Interactive Hydro Chart – .csv is downloaded to the download folder located on the computer.





Bulk charting




HomeDataMappingLibraryVisualizationProgram

ChartingBulk ChartingConceptual Models


Map


Data


Factsheet



Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum. Trajectories in reference sites are



[Previous Charting Version](#)

Bulk Charting

▼ Hydro

Water Level Range

Hydro Completeness

Salinity

Water Level

Temperature

Continuous

Site Hydro Index

Soil Porewater

Precipitation

► Vegetation

► Soil

► Spatial

► Report Card Charts

Water Year is October 1 - September 30

Scale: Station ▼

Date Range:
2/25/1987 - 3/11/2014

Min Date: 01/01/2001

Max Date: 12/31/2005

Apply Date Filter

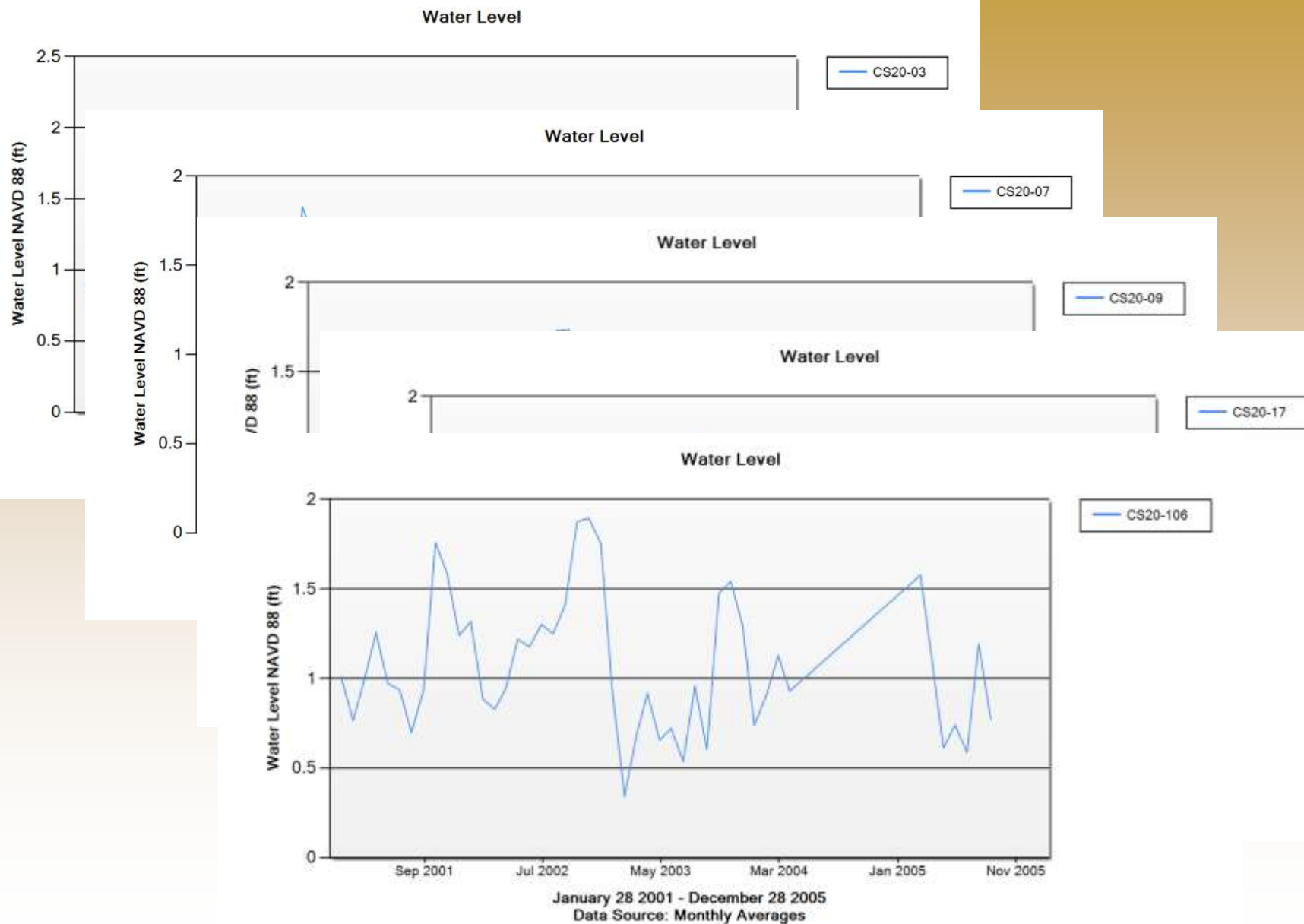
Basin: All Basins ▼

Project: CS-20 ▼

	Select All	Deselect All
CS20-14R		CS20-03
CS20-15R		CS20-07
		CS20-09
		CS20-106
		CS20-17

Show Map Selector

Submit Request





[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

Bulk Charting

▶ Hydro

▼ **Vegetation**

Forested
Herbaceous
Site Floristic Quality Index
Project/Reference FQI
Marsh Class

▶ Soil

▶ Spatial

▶ Report Card Charts

Basin: **All Basins** ▼

Project: **All Projects** ▼

Select All	Deselect All
CRMS0002	CRMS0647
CRMS0003	CRMS0655
CRMS0006	CRMS0672
CRMS0008	
CRMS0030	
CRMS0033	
CRMS0034	
CRMS0035	
CRMS0038	

Choose Colors

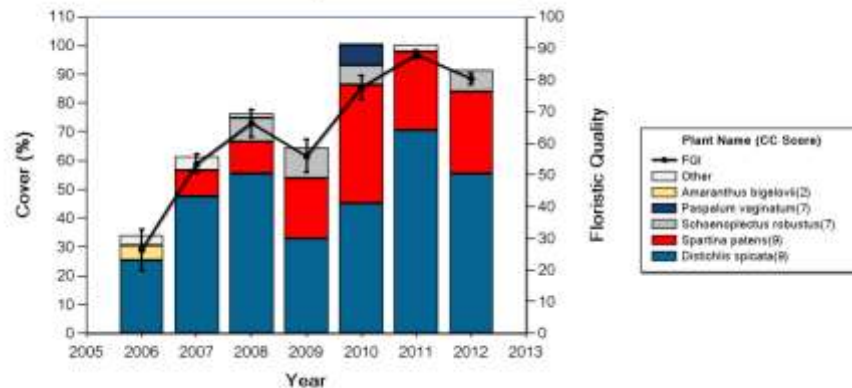
Cancel

<input checked="" type="checkbox"/>	Spartina patens	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Typha latifolia	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Phragmites australis	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Distichlis spicata	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Schoenoplectus robustus	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Paspalum vaginatum	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Amaranthus bigelovii	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Paspalum distichum	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Symphotrichum subulatum	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Other	<input type="checkbox"/>

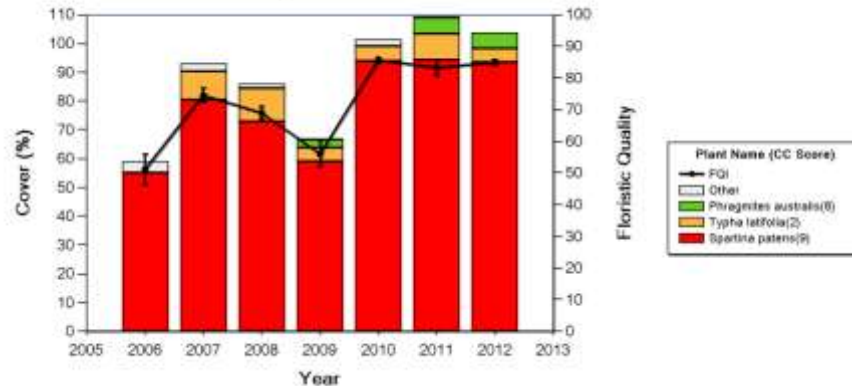
Show Map Selector

Submit Request

Floristic Quality Index for Saline Marsh, Site CRMS0655



Floristic Quality Index for Intermediate Marsh, Site CRMS0647



Download

Reporting

Basin: All Basins

Project: All Projects

Select All

Deselect All

CRMS0002
CRMS0003
CRMS0006
CRMS0008
CRMS0030
CRMS0033
CRMS0034
CRMS0035
CRMS0038

CRMS0647
CRMS0655
CRMS0672

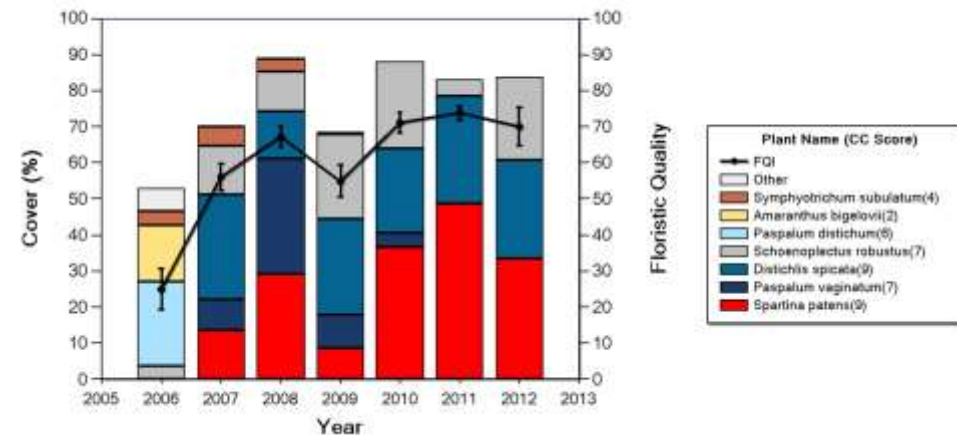
Choose Colors

Cancel

Spartina patens

Typha latifolia

Floristic Quality Index for Brackish Marsh, Site CRMS0672





CRMS Data Download

[Home](#) [Data](#) [Mapping](#) [Library](#) [Visualization](#) [Program](#)

[Spatial](#) [SONRIS Data Tool](#) [Bulk Data Download](#)

[Previous Charting Version](#)

[Charting](#) [Bulk Charting](#) [Data Download](#) [Reporting](#)

Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database ([SONRIS](#))

▶ Hydro

▶ Vegetation

▶ Soil

▶ Spatial



[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database ([SONRIS](#))

- ▼ Hydro

Hydro Averages

Hydro Index

Percent Flooded

Water Level Range
- ▶ Vegetation
- ▶ Soil
- ▶ Spatial

Water Year is October 1 - September 30

Year:

	Select All	Deselect All
2007		
2008		
2009		
2010		
2011		
2012		
2013		

Submit



[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database ([SONRIS](#))

▼ Hydro

Hydro Averages

Hydro Index

Percent Flooded

Water Level Range

▶ Vegetation

▶ Soil

▶ Spatial

Water Year is October 1 - September 30

Year:

	Select All	Deselect All
		2007
		2008
		2009
		2010
		2011
		2012
		2013

Submit

Basin:

Project:

	Select All	Deselect All
CRMS0002		CRMS0030
CRMS0003		CRMS0033
CRMS0006		CRMS0034
CRMS0047		CRMS0035
CRMS0056		CRMS0038
CRMS0058		CRMS0039
CRMS0061		CRMS0046
CRMS0063		
CRMS0065		

[Show Map Selector](#) Email Address:

Submit Request



Spatial selection has been added to Charting

Charting

Bulk Charting

Data Download

Reporting

▼ Hydro

Water Level Range

Hydro Completeness

Salinity

Water Level

Temperature

Continuous

Site Hydro Index

Soil Porewater

Precipitation

Interactive Hydro

► Vegetation

► Soil

► Spatial

► Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Multi Station

Date Range:
2/25/1987 - 3/11/2014

Min Date: 2/25/1987

Max Date: 3/11/2014

Apply Date Filter

Basin: All Basins

Project: All Projects

Selection limited to 10 items

AT04-01	
AT04-02	
AT04-03	
AT04-04	
AT04-06	
BA01-01	
BA01-02	
BA01-03	

☐ Include major weather/storm events

Show Map Selector

Submit Request



Spatial selection has been added to Charting

Select Mode - Drag the Mouse inside the map to select stations.



● CRMS Stations ● CWPPRA Stations

Clear Selected

Submit

BA01-02

BA01-03

Show Map Selector

Submit Request

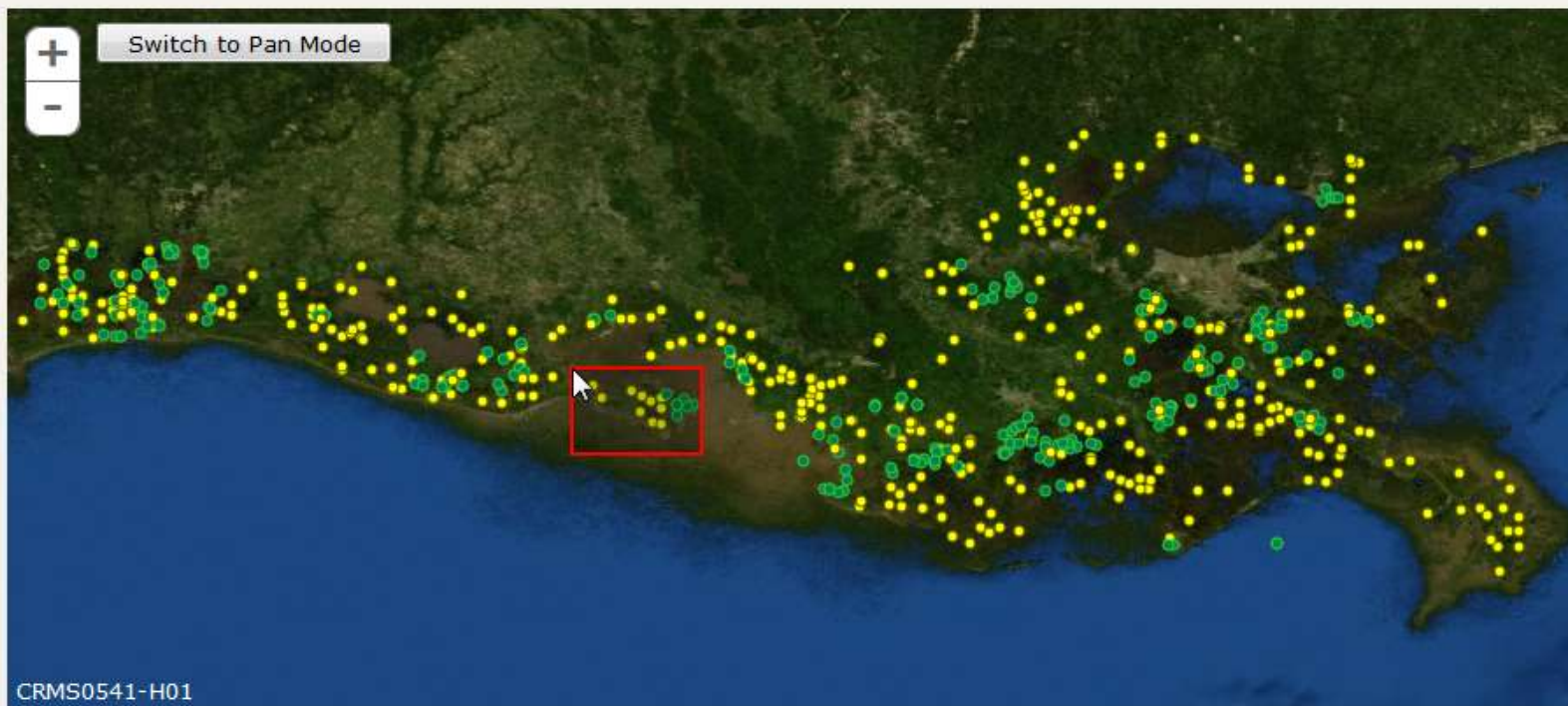




Spatial selection has been added to Charting

[Previous Charting Version](#)

Select Mode - Drag the Mouse inside the map to select stations.



● CRMS Stations

● CWPPRA Stations

Clear Selected

Submit

BA01-02

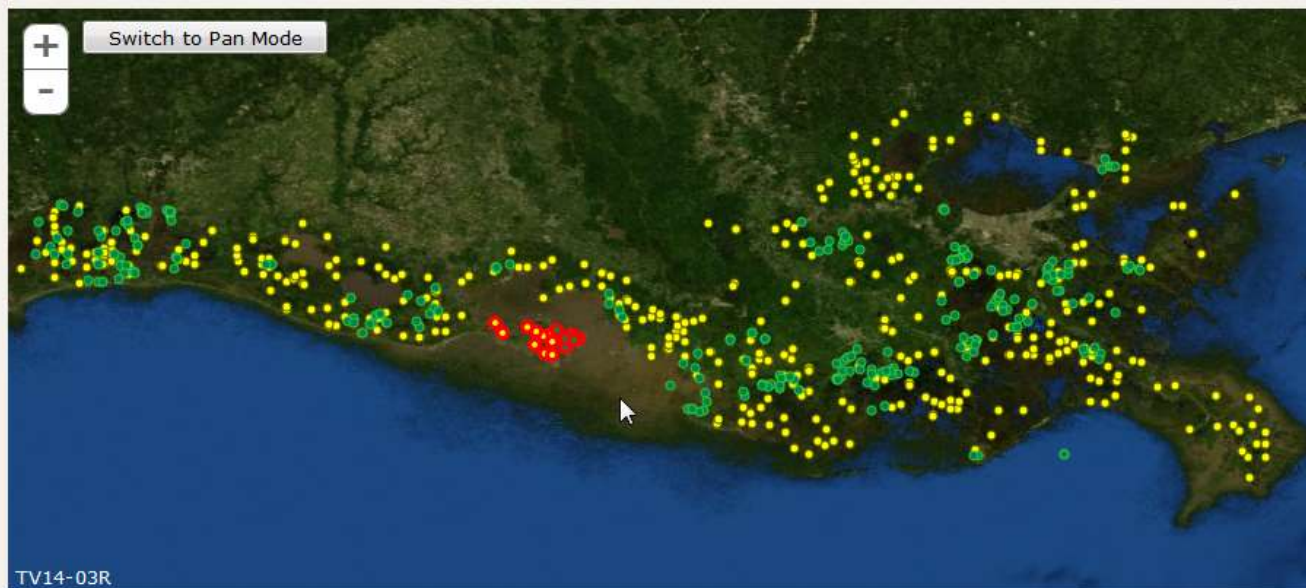
BA01-03

☐ Include major weather\storm events



Spatial selection has been added to Charting

Select Mode - Drag the Mouse inside the map to select stations.



● CRMS Stations ● CWPPRA Stations

Clear Selected

Submit

BA01-02

CRMS0524-W01

BA01-03

CRMS0529-H01

Show Map Selector

Submit Request





Spatial selection has been added to Charting

Water Level Range

Hydro Completeness

Salinity

Water Level

Temperature

Continuous

Site Hydro Index

Soil Porewater

Precipitation

Interactive Hydro

▶ Vegetation

▶ Soil

▶ Spatial

▶ Report Card Charts

Clear Charts

Scale: Multi Station

Date Range:
2/25/1987 - 1/31/2014

Min Date: 2/25/1987

Max Date: 1/31/2014

Apply Date Filter

Basin: All Basins

Project: All Projects

Selection limited to 10 items

AT04-01	CRMS0498-H01
AT04-02	CRMS0499-H01
AT04-03	CRMS0504-H01
AT04-04	CRMS0520-H01
AT04-06	CRMS0522-W01
BA01-01	CRMS0523-H01
BA01-02	CRMS0524-W01
BA01-03	CRMS0529-H01

Show Map Selector

Submit Request

Hydrologic Index for 2012 Saline Marsh

Hydrologic Index for 2012 Saline Marsh

Legend

Hydrologic Index for 2012 Saline Marsh

Hydrologic Index for 2012 Saline Marsh



Spatial selection has been added to Charting

[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

Hydro

Water Level Range
Hydro Completeness
Salinity
Water Level
Temperature
Continuous
Site Hydro Index
Soil Porewater
Precipitation

Interactive Hydro

Vegetation

Soil

Spatial

Report Card Charts

Clear Charts

Water Year is October 1 - September 30

Scale: Multi Station

Date Range:

2/25/1987 - 1/31/2014

Min Date: 2/25/1987

Max Date: 1/31/2014

Apply Date Filter



Basin: Mississippi River

Project: All Projects

Selection

- All Basins
- Atchafalaya
- Barataria
- Breton Sound
- Calcasieu/Sabine
- Mermentau
- Mississippi River Delta**
- Pontchartrain
- Terrebonne
- Teche/Vermilion
- CRMS0159-H01
- CRMS0161-H01
- CRMS0162-H01
- CRMS0163-H01
- CRMS0164-H01

☐ Include major weather/storm events



Spatial selection has been added to Charting


[Previous Charting Version](#)

Select Mode - Drag the Mouse inside the map to select stations. ✕

+

-

Switch to Pan Mode



● CRMS Stations ● CWPPRA Stations

Clear Selected

Submit

CRMS0162-H01	
CRMS0163-H01	
CRMS0164-H01	

☐ Include major weather\storm events



CRMS Report Card


[Home](#) [Data](#) [Mapping](#) [Library](#) [Visualization](#) [Program](#)


Maps


Presentations




DNR Reports

CRMS Reporting


Map


Data


Factsheet



Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum. Trajectories in reference sites are then compared with project trajectories.



[Previous Charting Version](#)

Charting

Bulk Charting

Data Download

Reporting

Generate Report Card

Year: 2011

Generate Report Card

Site Level Report

Project Level Report

Basin Level Report

Coastwide Level Report

OM&M

CRMS0002

CRMS0003

CRMS0006

CRMS0008

CRMS0030

CRMS0033

CRMS0034

CRMS0035

CRMS0038

CRMS0039

CRMS0046

CRMS0047

Submit Request

[Report Card CRMS0003 2011](#)

Site Scale Assessment: CRMS0003

The following graphics provide information about the site. The graphics present an assessment of how aspects of the site are relative to other sites within a similar marsh type, to the site's own history, and to the site's own characteristics.

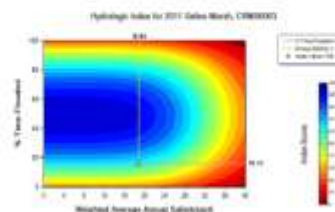


Figure E. Hydrologic index score (indicated by color scale) based on the combined influences of average annual salinity (horizontal axis) and flood duration (vertical axis).

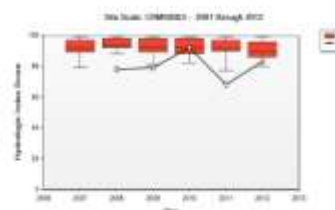


Figure F. A time series of HI scores for a CRMS site relative to the box plot of the scores for all the sites within the same marsh type each year.


Literature Cited


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- Couvillion, B.R., Barras, J.A., Steyer, G.D., Sleavin, William, Fischer, Michelle, Beck, Holly, Trahan, Nadine, Griffin, Brad, and Heckman, David, 2011, Land area change in coastal Louisiana from 1932 to 2010: U.S. Geological Survey Scientific Investigations Map 3164, scale 1:266,000, 12 p. pamphlet.
- Cretini, K.F., and Steyer, G.D. 2011. Floristic Quality Index – An assessment tool for restoration projects and monitoring sites in coastal Louisiana: U.S. Geological Survey Fact Sheet 2011-3044, 4 p. <http://pubs.usgs.gov/fs/2011/3044/>.
- Cretini, K.F., Visser, J.M., Krauss, K.W., and Steyer, G.D. 2011. Development and use of a floristic quality index for coastal Louisiana marshes. *Environmental Monitoring and Assessment*.
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- Kulp, M.A. 2000. *Holocene stratigraphy, history and subsidence: Mississippi River Delta region, north-central Gulf of Mexico*. Ph.D. Dissertation, University of Kentucky. 358p.
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- Snedden, G.A., and Swenson, E.M., 2012. Hydrologic index development and application to selected Coastwide Reference Monitoring System sites and Coastal Wetlands Planning, Protection and Restoration Act projects: U.S. Geological Survey Open-File Report 2012-1122, 25 p.
- Stagg, C.L., Sharp, L.A., McGinnis, T.E., and Snedden, G.A., 2013. Submergence Vulnerability Index development and application to Coastwide Reference Monitoring System sites and Coastal Wetlands Planning, Protection and Restoration Act projects: U.S. Geological Survey Open-File Report 2013-1163, 13 p.
- Steyer, G.D., Sasser, C.E., Visser, J.M., Swenson, E.M., Nymann, J.A., and Raynie, R.C., 2003. A proposed coast-wide reference monitoring system for evaluating wetland restoration trajectories in Louisiana. *Environmental Monitoring and Assessment*, 81:107-117.
- Steyer, G.D., 2010. *Coastwide Reference Monitoring System (CRMS): U.S. Geological Survey Fact Sheet 2010-3018*, 2 p. (Revised August 2010). <http://pubs.usgs.gov/fs/2010/3018/>.
- Visser, J.M., Steyer, G.D., Shaffer, G.P., Höppner, S.S., Reyes E., Keddy, P., Mendelsohn, I.A., and Swarzenski, C., 2003b. *Habitat Switching Module*, in Louisiana Coastal Area (LCA), La - Ecosystem Restoration: Comprehensive Coastwide Ecosystem.


Using the mapping interface




[Home](#) [Data](#) [Mapping](#) [Library](#) [Visualization](#) [Program](#)

[SONRIS Viewer](#)
[Basic Viewer](#)


Map


Data


Factsheet



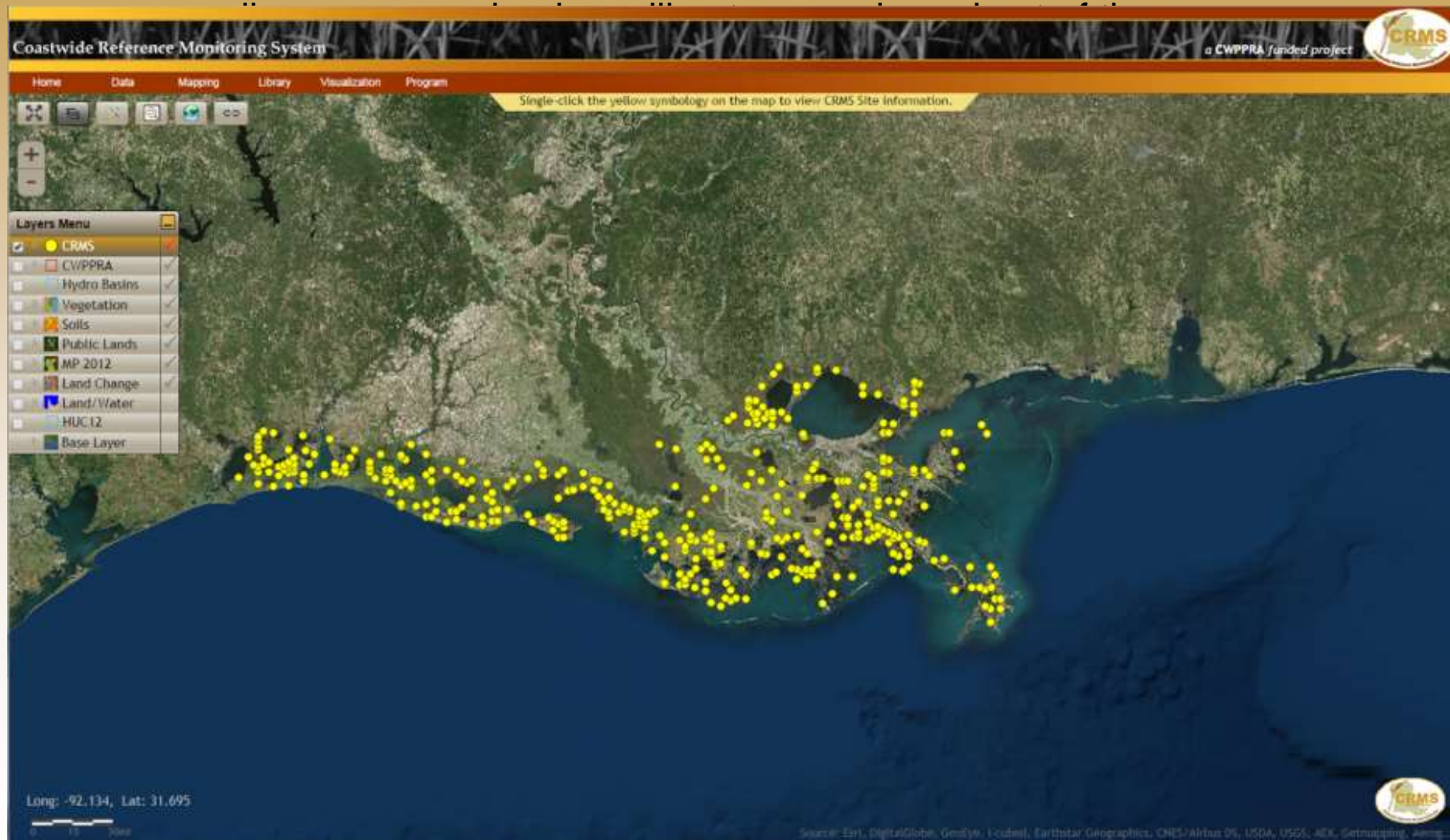
Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum. Trajectories in reference sites are

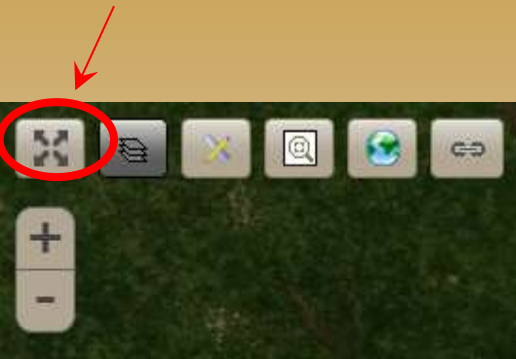


Map Navigation

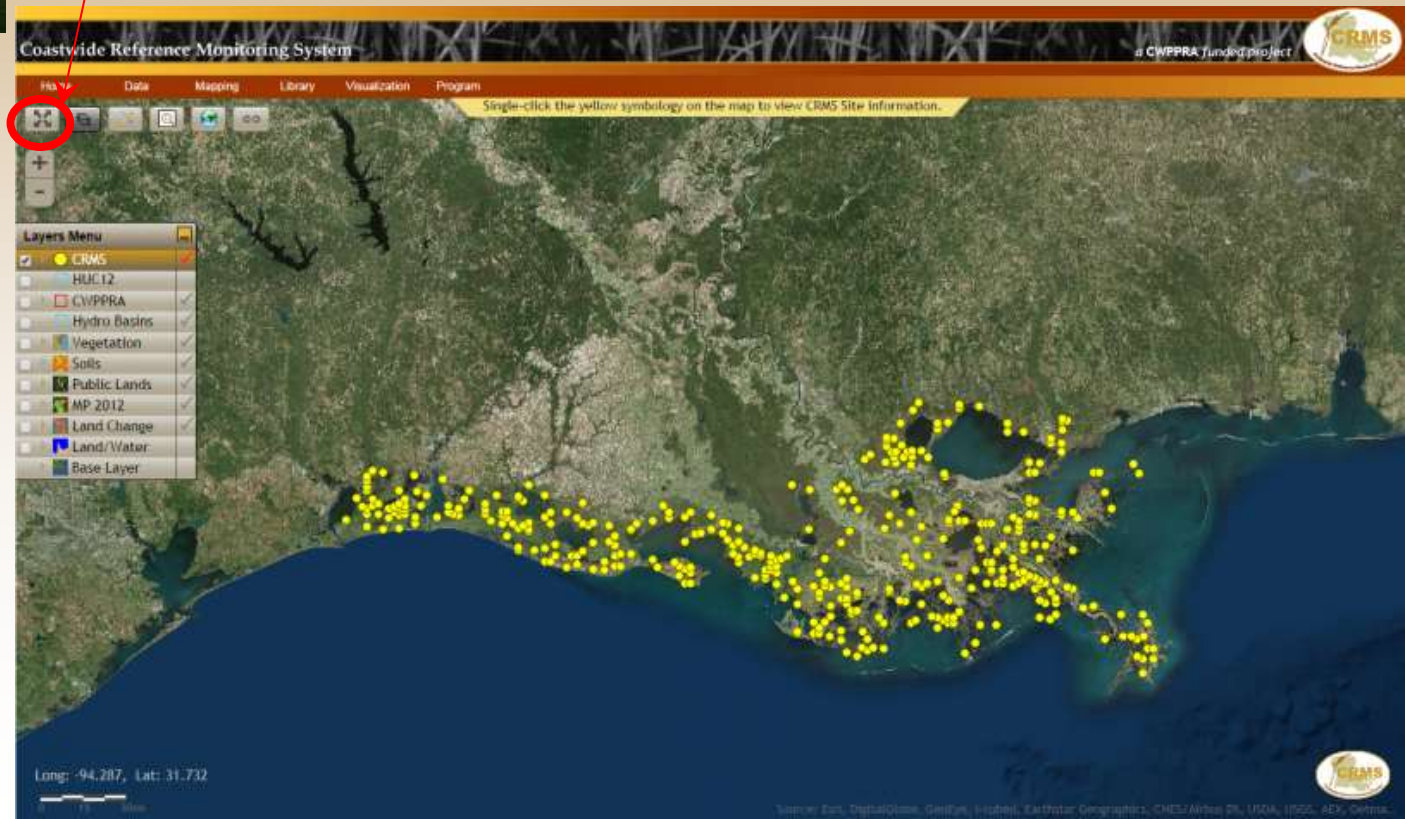
CRMS Viewer now implements ESRI's ArcGIS JavaScript API
which



Full Screen Button hides the top menu.



Full Screen Button changes when the top menu is hidden.



Layers Button shows and hides the Layers Menu

Layers Menu
Shown:



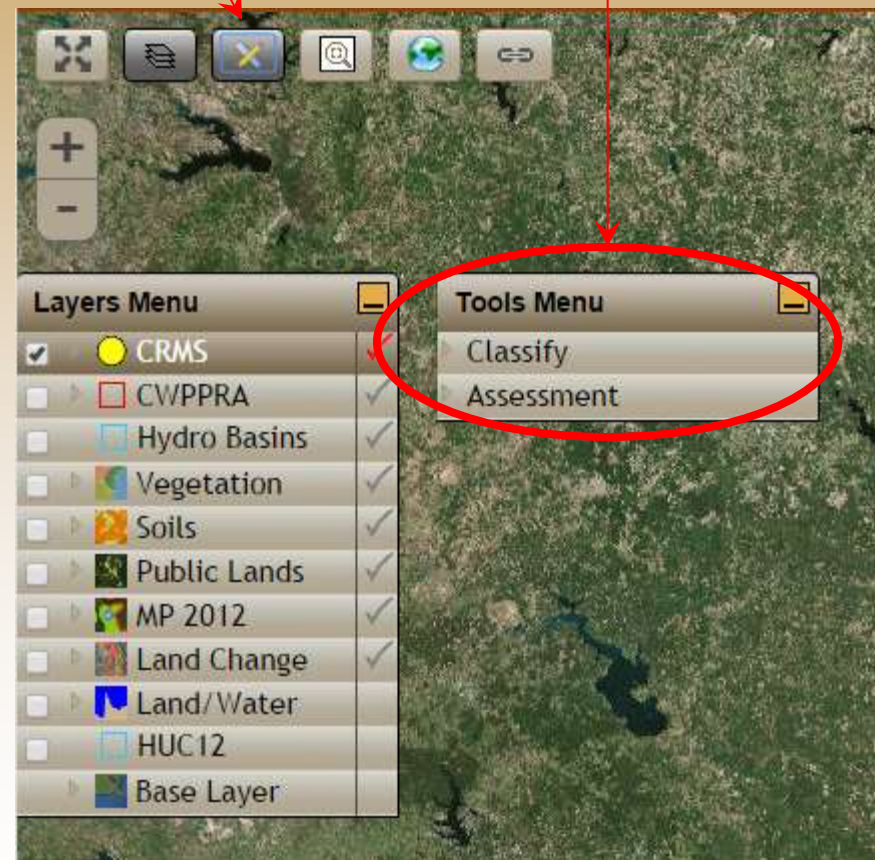
Layers Menu
Hidden:



Tools Button brings up the Tools Menu.



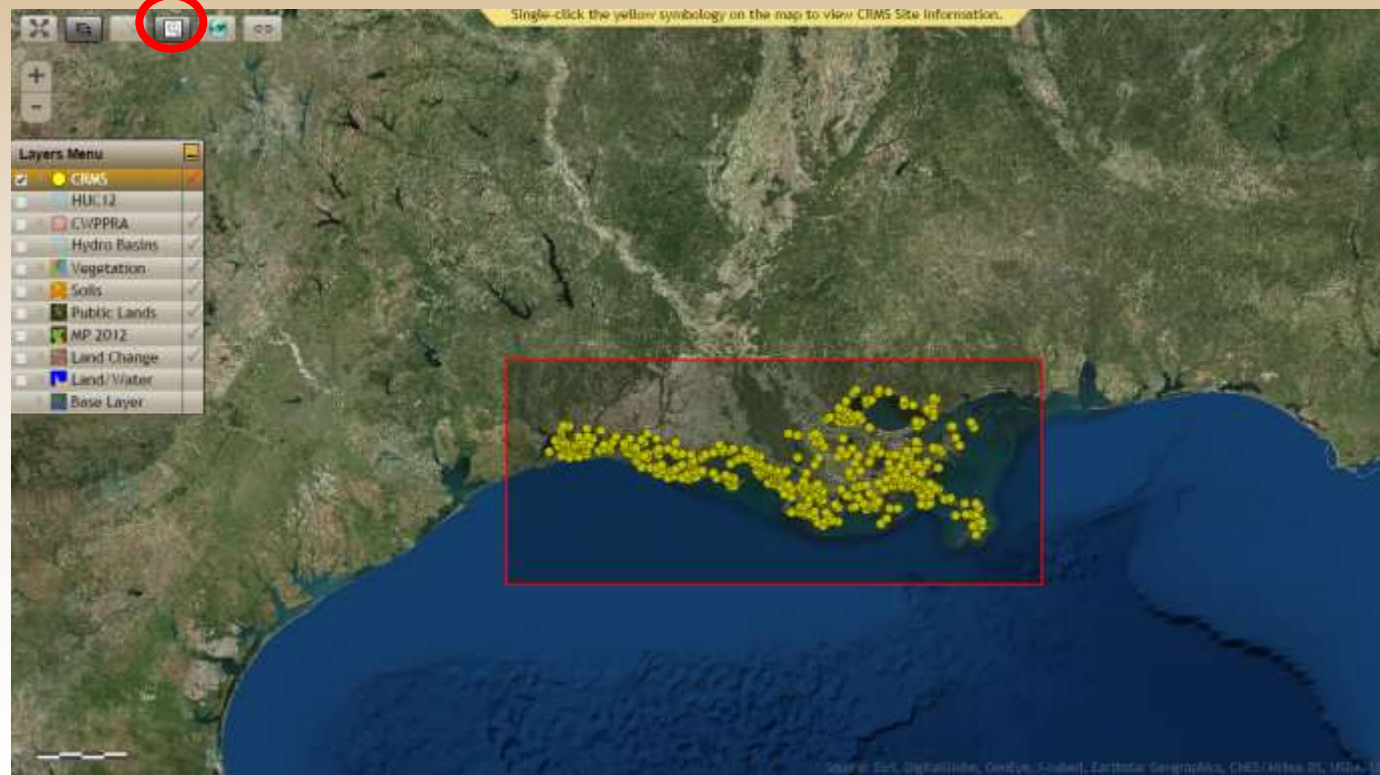
Tools Button darkens when the menu is shown.



Zoom Button zooms to the rectangle drawn on the map.



The icon darkens when the mouse is in the “zoom” state.



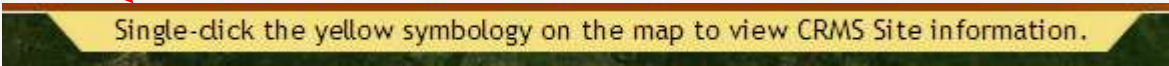
Zoom To Full Extent Button resets the map back to the original area and zoom level.



+/- Buttons zoom in and out.



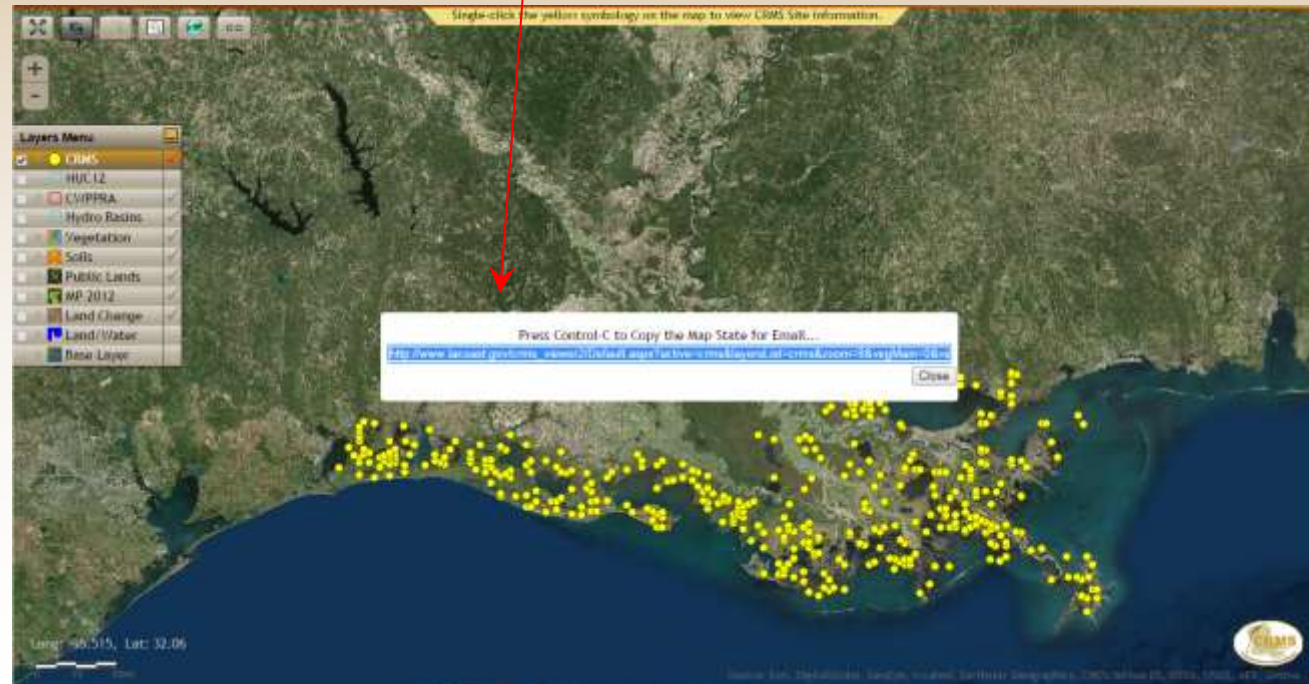
Manila dropdown shows how to interact with the current active layer.



Used to create a save state on the map.



Link created to save the current state of the map.





Interface

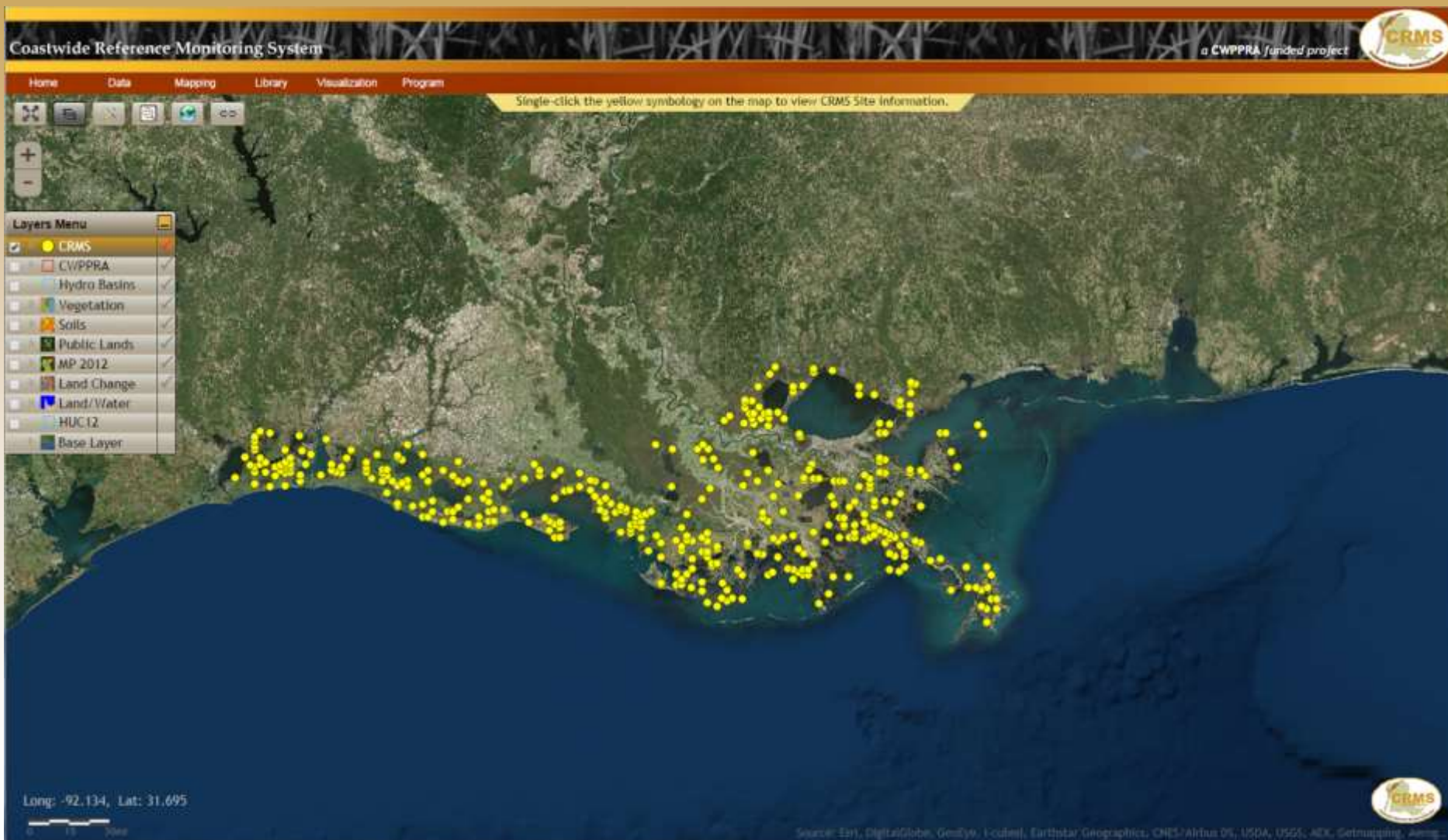
Expand layer to display more layer options.



Make this the current active layer.

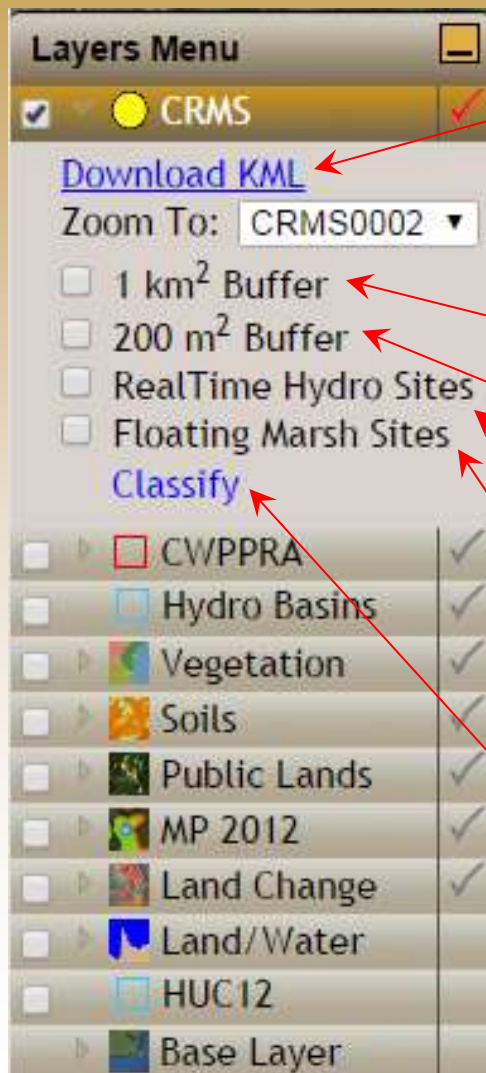


CRMS Active Layer





CRMS Active Layer



Download a KML file to used in Google Earth.

Zooms to the site and shows the site information bubble.

Checkbox adds/removes the 1 km² Buffer layer to the map.

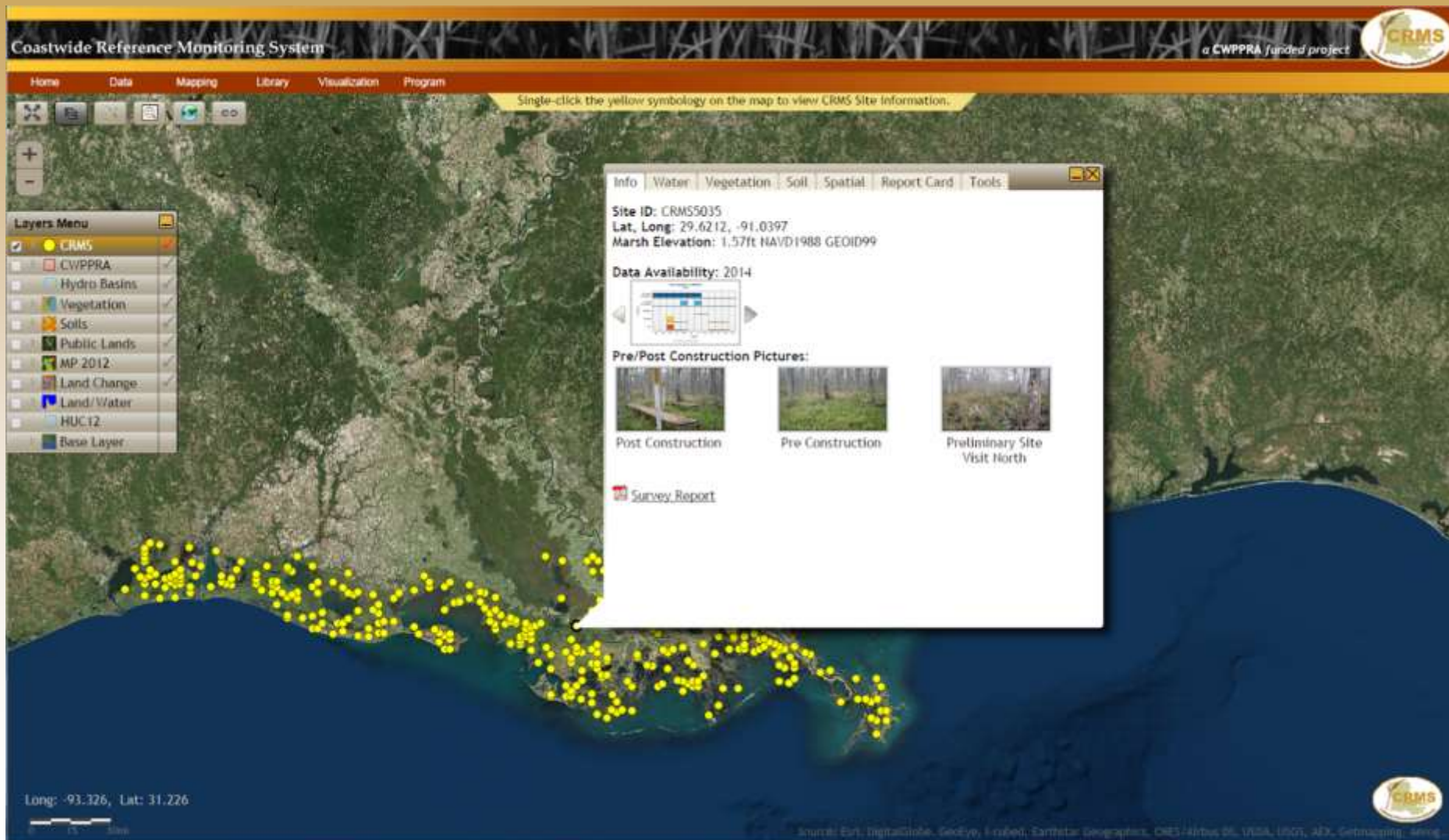
Checkbox adds/removes the 200 m² Buffer layer to the map.

Checkbox adds/removes the Real Time Hydro Sites layer to the map.

Checkbox adds/removes the Floating Marsh Sites layer to the map.

Classify invokes the tools menu with the classification option selected.

Click a point for Information Bubble





Information Bubble

The screenshot shows a web application window titled 'Information Bubble' for site CRM55035. The window has a tabbed interface with 'Info' selected. The 'Info' tab displays the following information:

- Site ID:** CRM55035
- Lat, Long:** 29.6212, -91.0397
- Marsh Elevation:** 1.57ft NAVD1988 GEOID99
- Data Availability:** 2012

Below the data availability section is a small bar chart showing data availability for various parameters (Water, Vegetation, Soil, Spatial) across different years (2008, 2009, 2010, 2011, 2012). The chart shows that data is available for all parameters in 2012.

Under the 'Pre/Post Construction Pictures' section, there are three photographs:

- Post Construction:** A photograph showing a wooden boardwalk or path in a marshy area.
- Pre Construction:** A photograph showing a marshy area with trees and vegetation.
- Preliminary Site Visit North:** A photograph showing a marshy area with trees and vegetation.

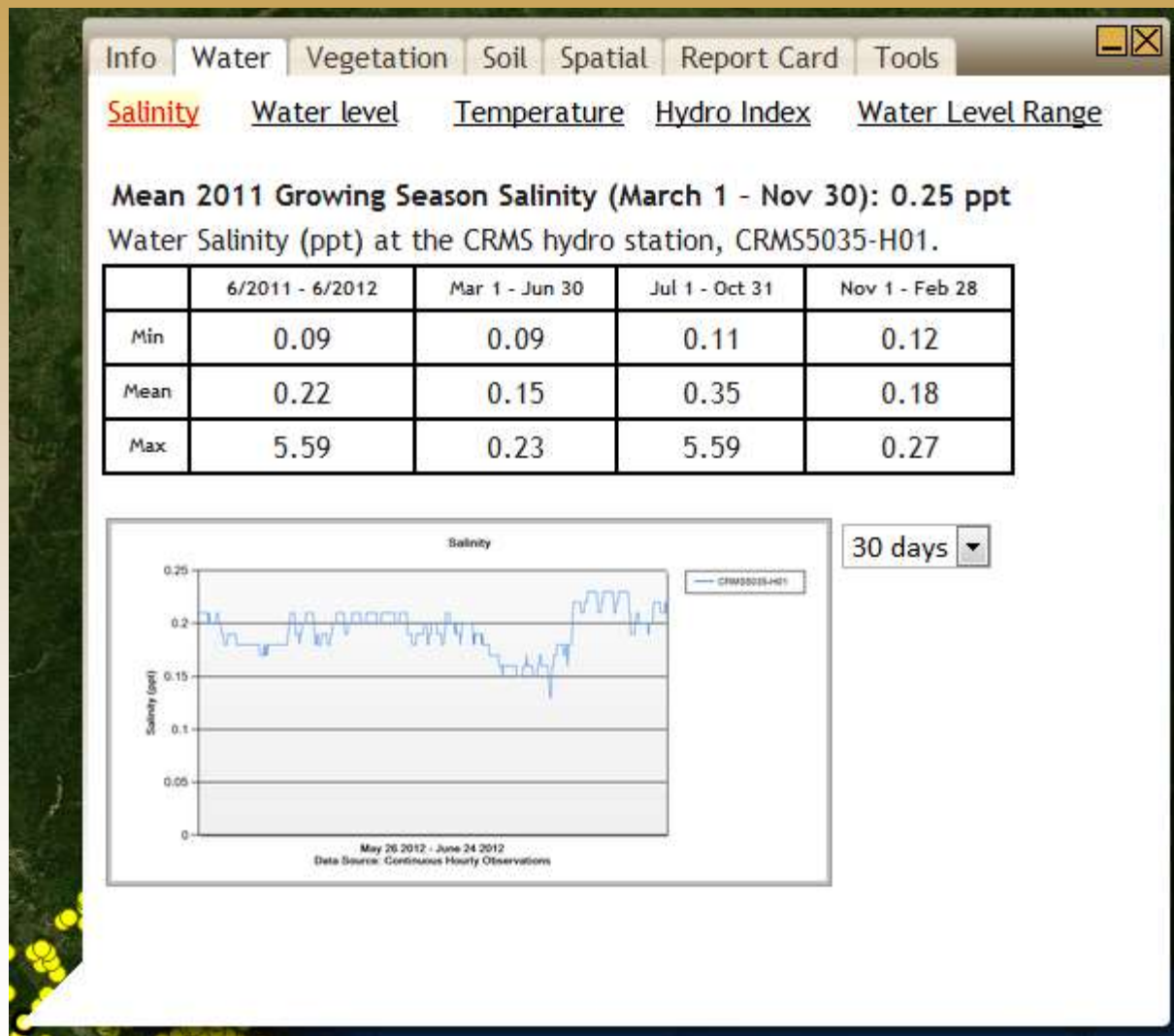
At the bottom of the window, there is a link labeled 'Survey Report' with a document icon.

The information bubble appears when a CRMS site is clicked. The Site Info tab is automatically chosen when the bubble pops up on the screen.



CRMS Active Layer

Information Bubble



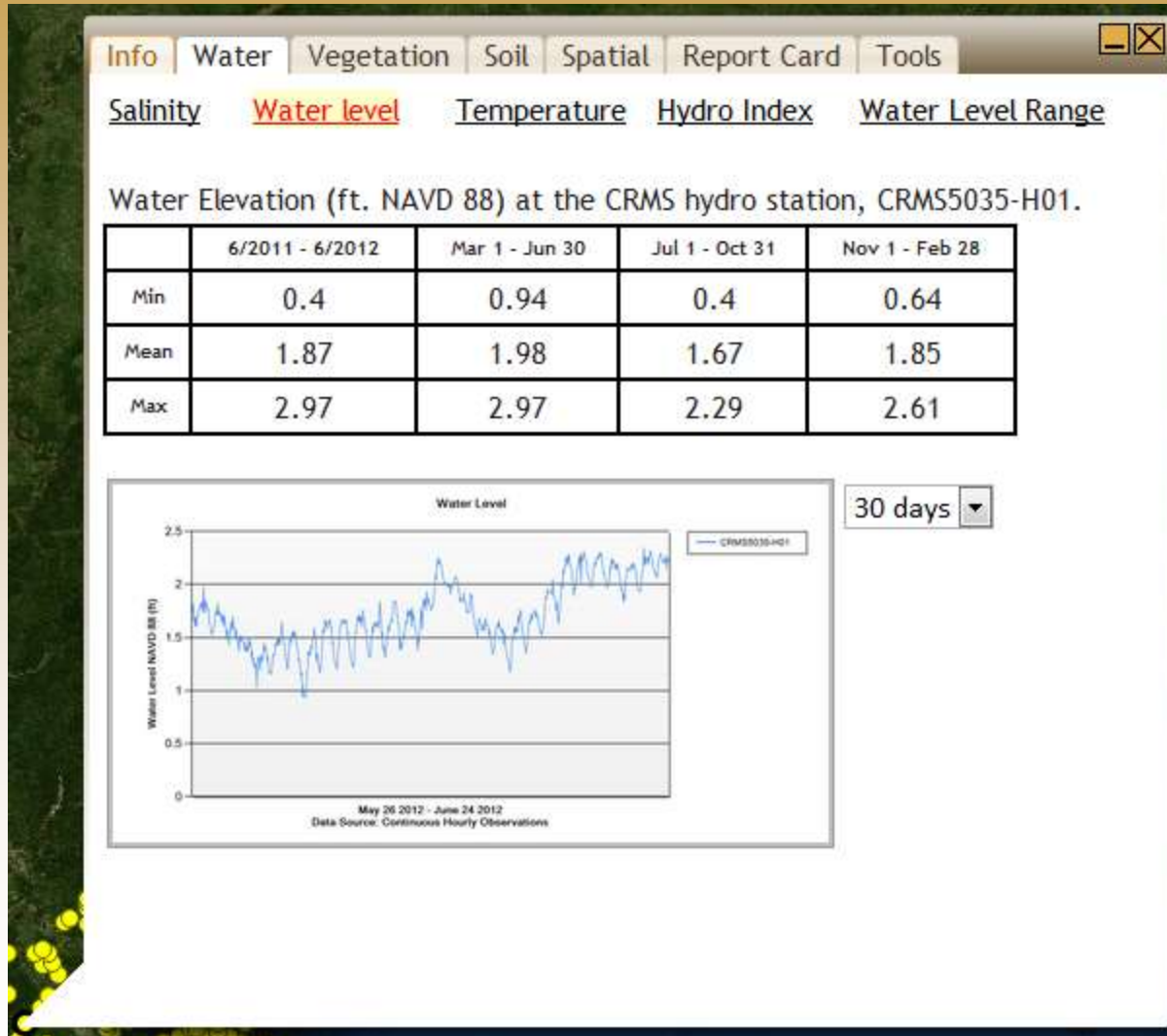
The Water tab contains all hydrologic information for the selected site.

Salinity – Brief overview of salinity data for the site. Also charts most recent salinity data for the site.



CRMS Active Layer

Information Bubble



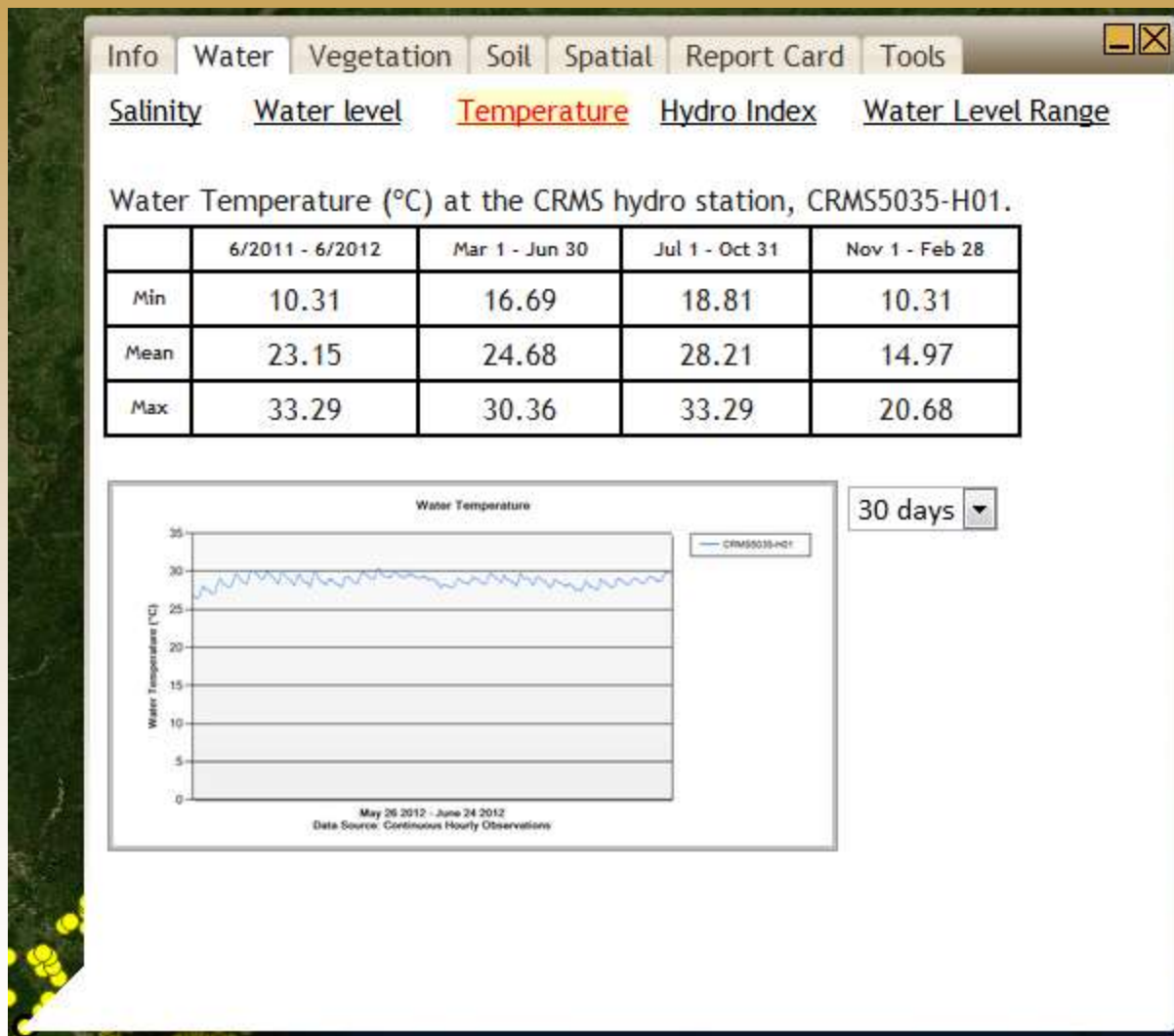
The Water tab contains all hydrologic information for the selected site.

Water Level – Brief overview of water level data for the site. Also charts most recent water level data for the site.



CRMS Active Layer

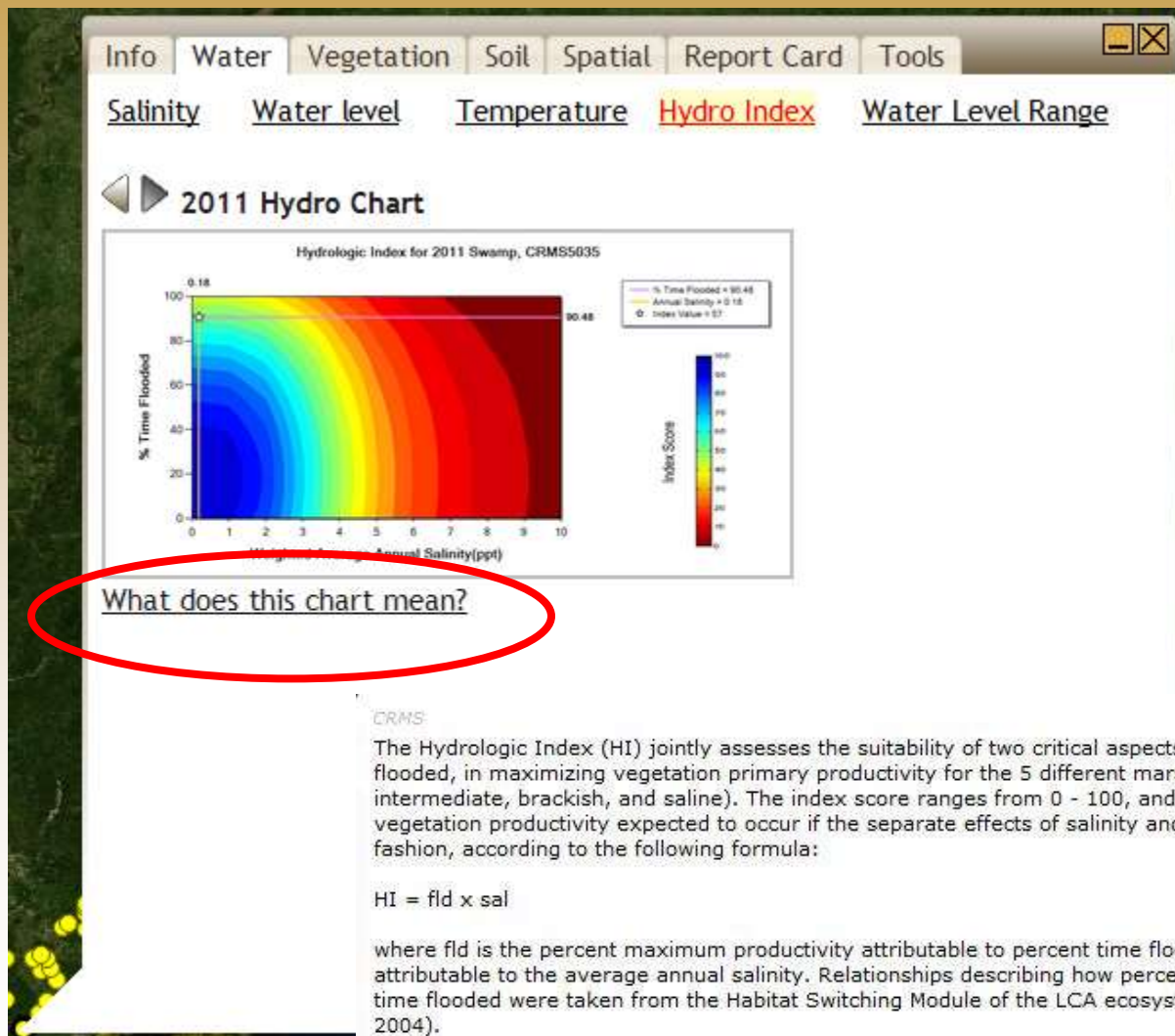
Information Bubble



The Water tab contains all hydrologic information for the selected site.

Water Temperature – Brief overview of water temperature data for the site. Also charts most recent temperature data for the site.

Information Bubble



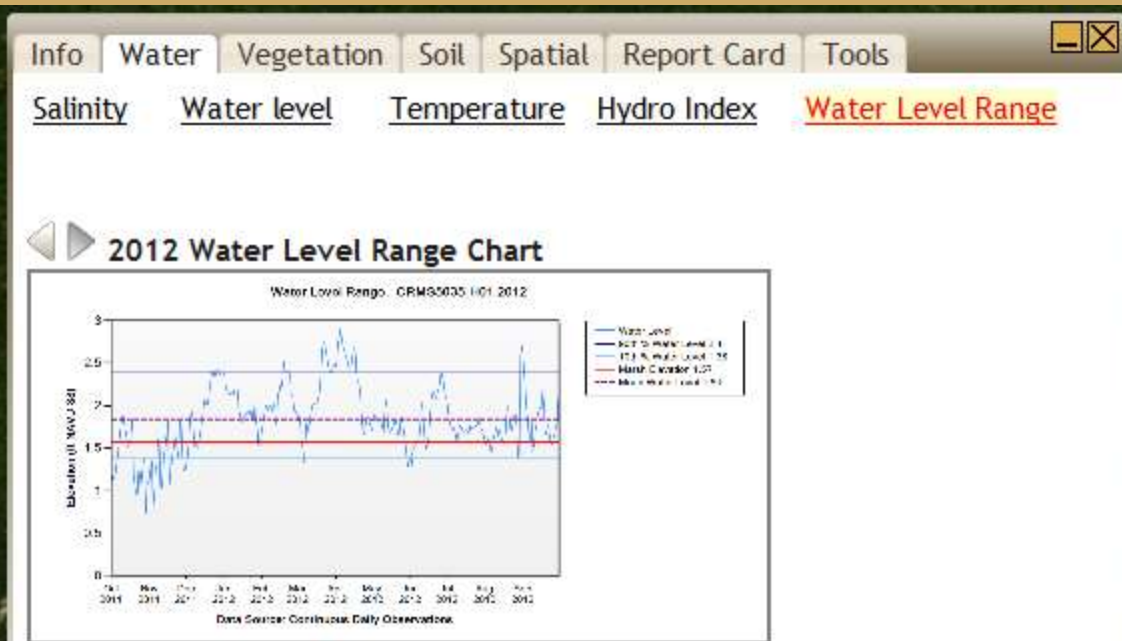
The Water tab contains all hydrologic information for the selected site.

Hydro Index – All Hydro Index charts available for the site.

MOVE CLOSE

Information Bubble

The Water tab contains all hydrologic information for the selected site.

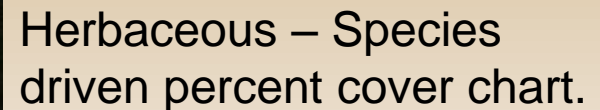


Water Level Range – All water level range charts available for the current site.

What does this chart mean?

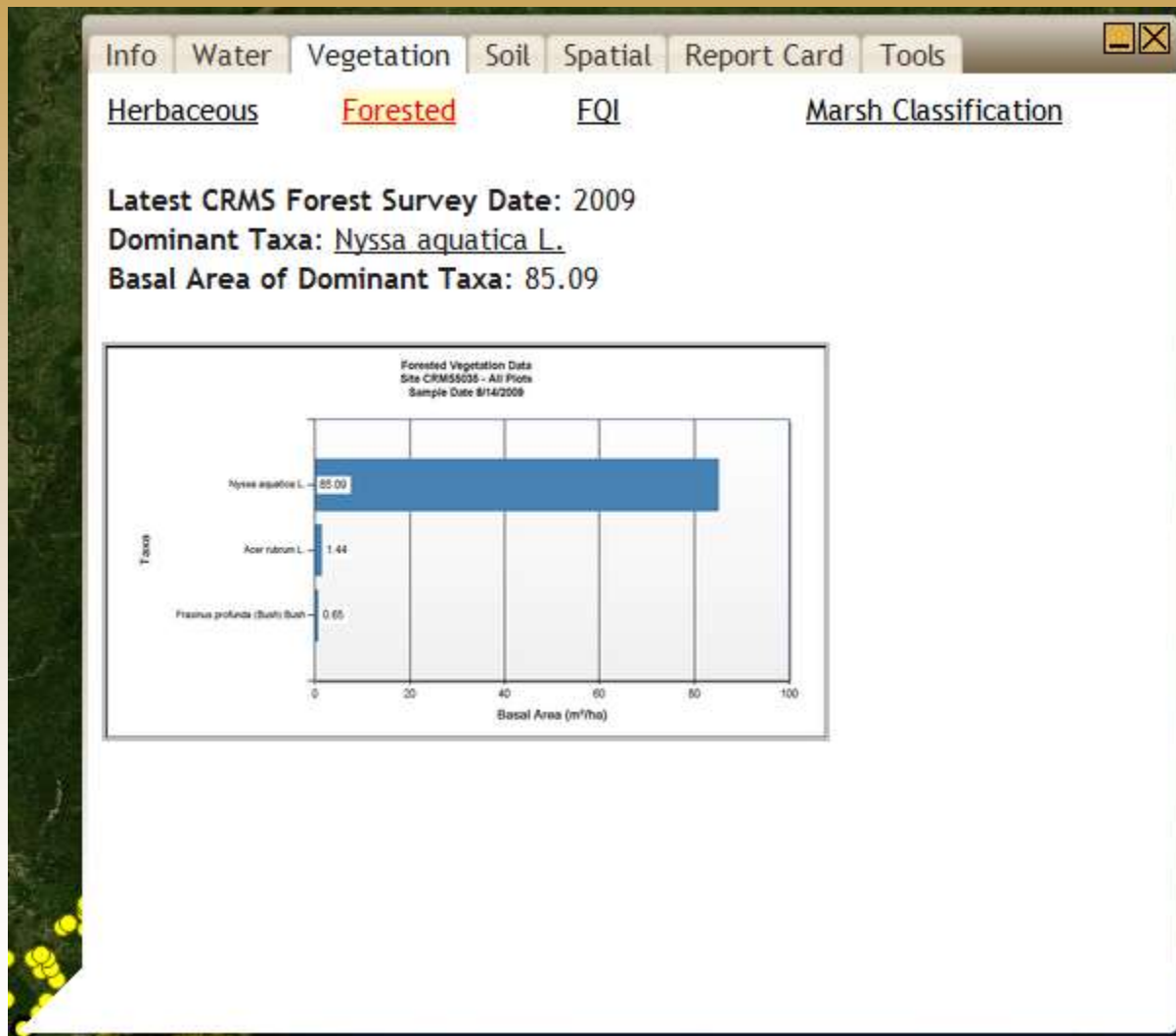


The Vegetation tab contains all vegetation information for the selected site.



MOVE CLOSE

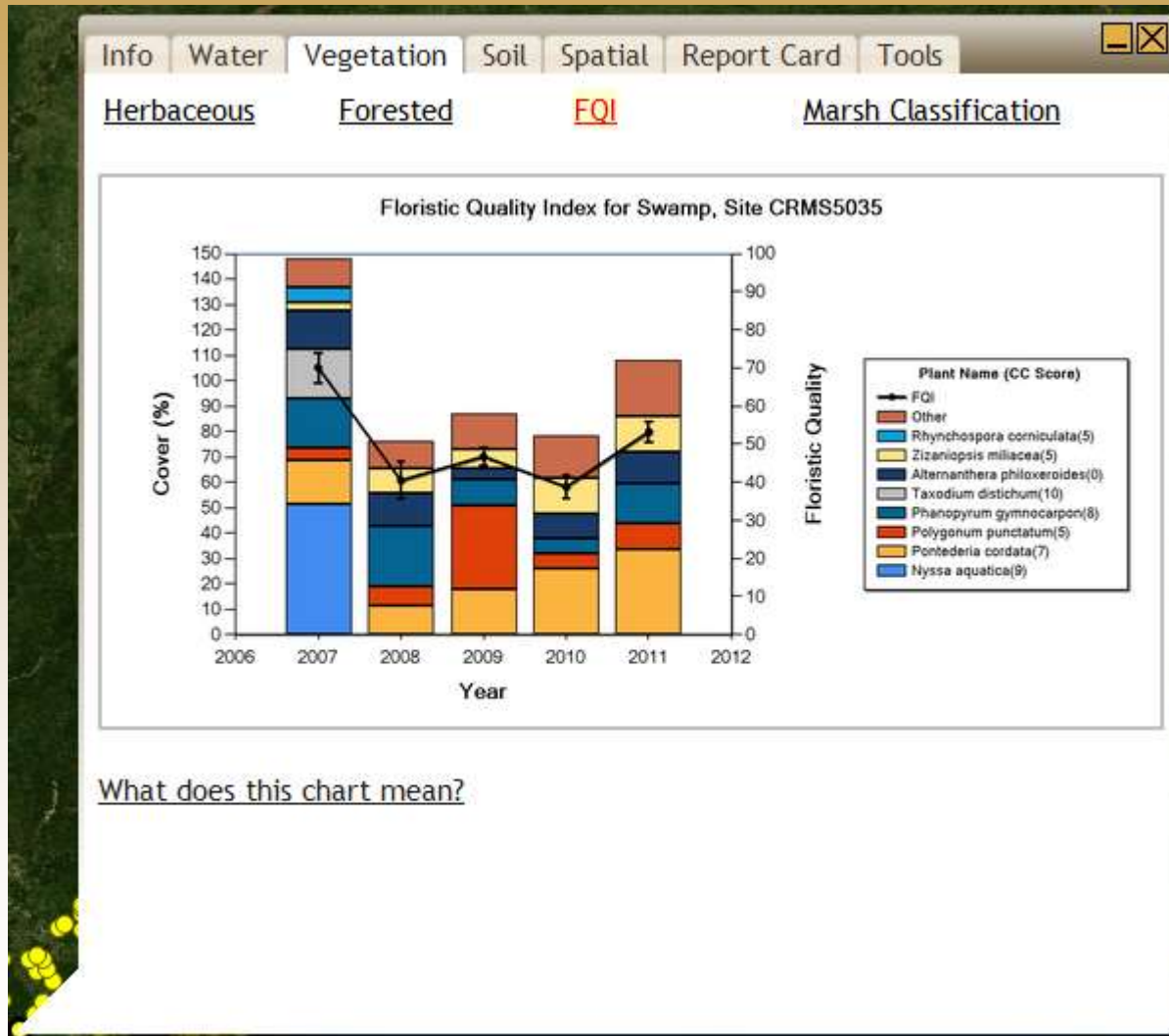
Information Bubble



The Vegetation tab contains all vegetation information for the selected site.

Forested – Species driven basal area chart.

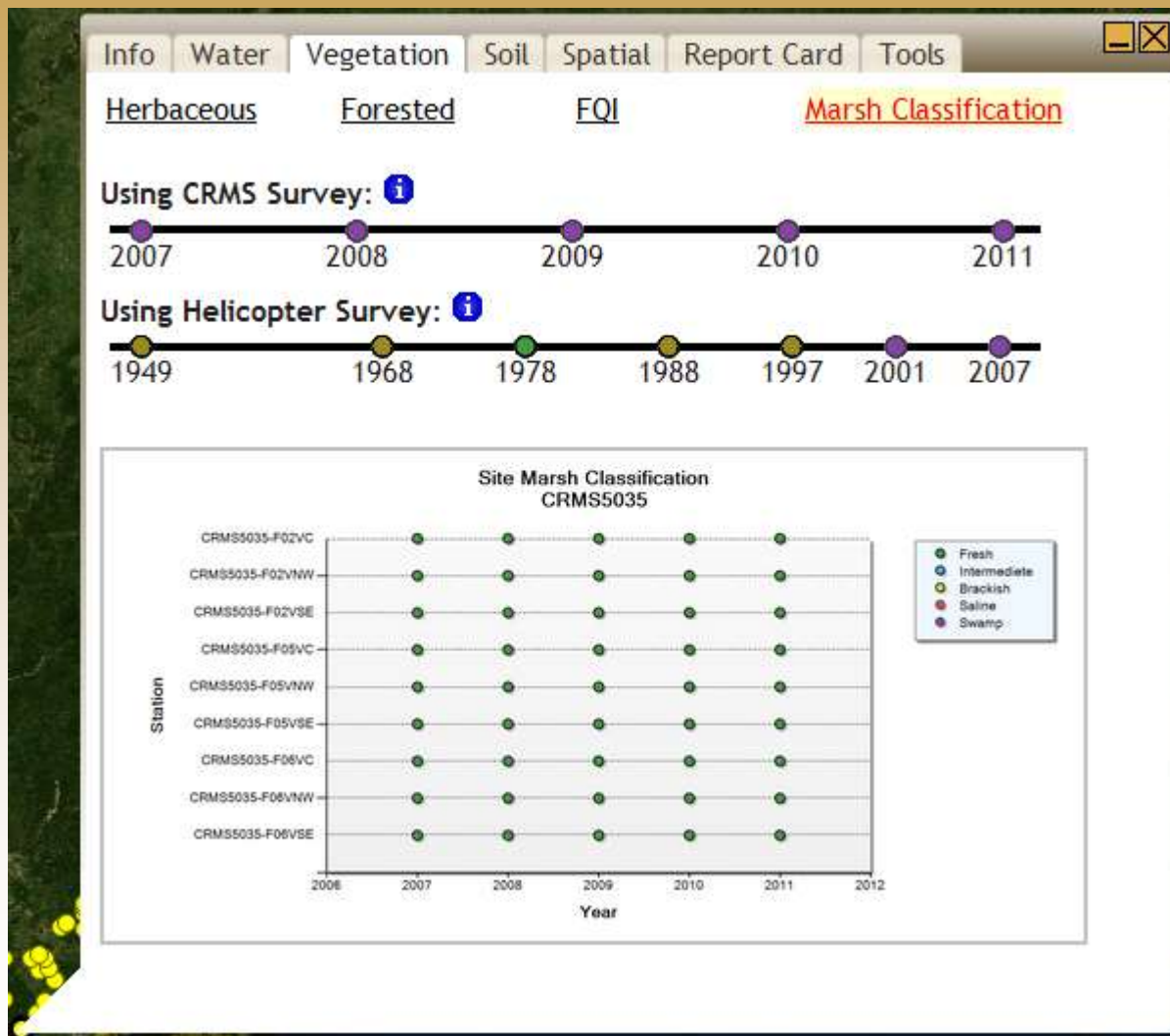
Information Bubble



The Vegetation tab contains all vegetation information for the selected site.

Floristic Quality Index

Information Bubble

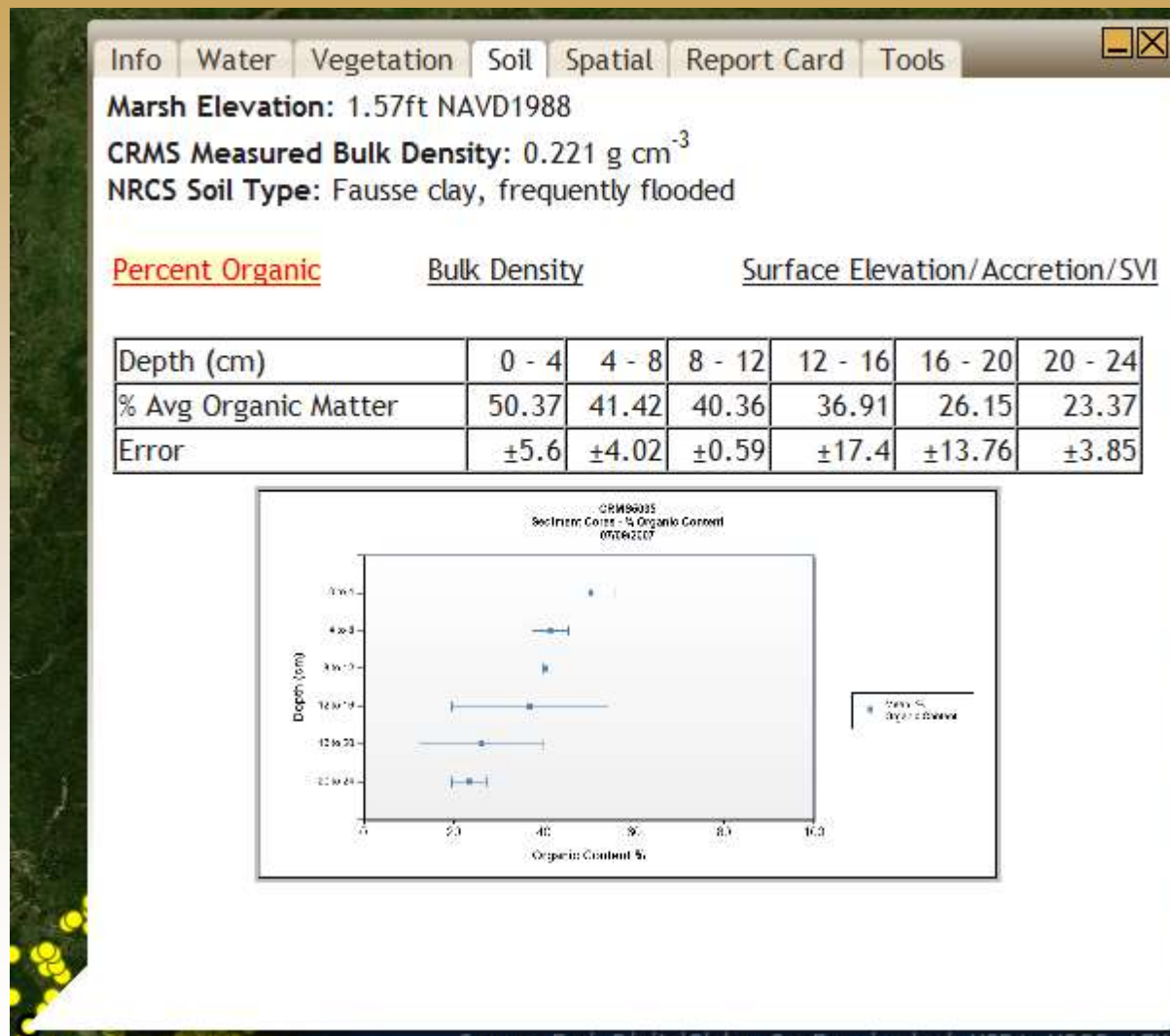


The Vegetation tab contains all vegetation information for the selected site.

Marsh Classification – The chart displays marsh class by station over time, the top bar is marsh class at the site level, and the bottom line is marsh class at the site level using the helicopter survey data.



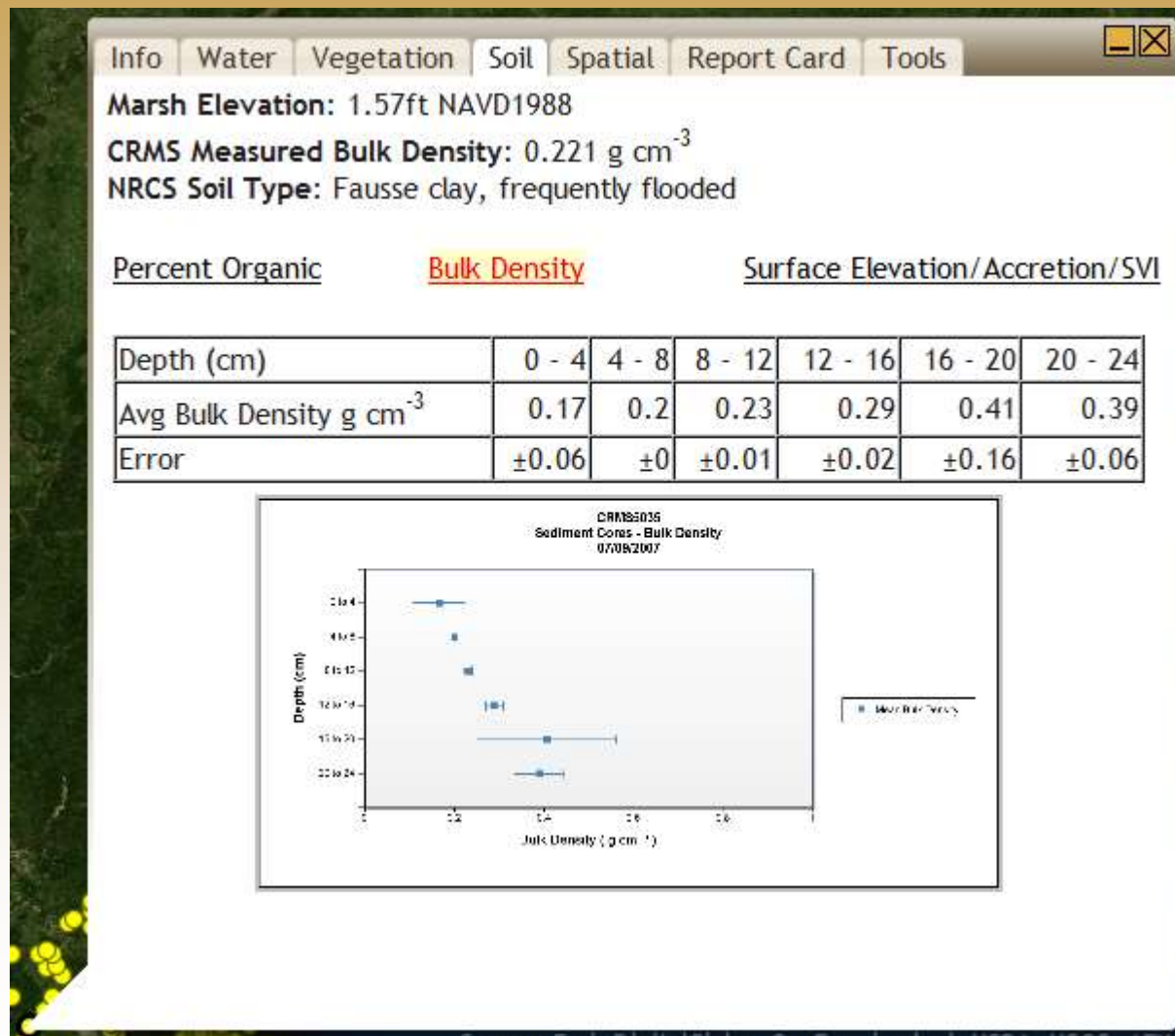
Information Bubble



The Soil tab contains all soil information for the selected site.

Percent Organic – Soil profiles taken at site establishment.

Information Bubble

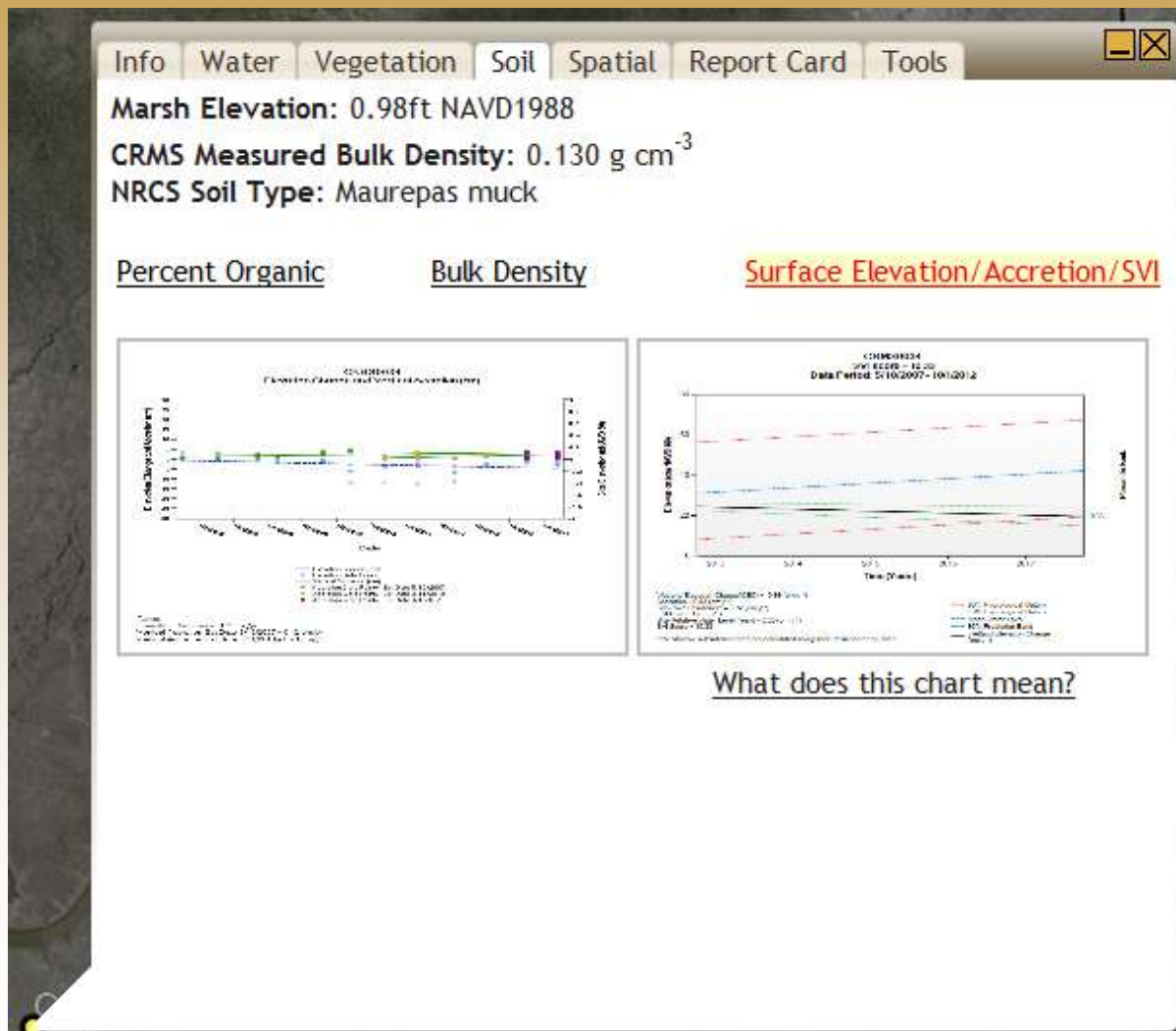


The Soil tab contains all soil information for the selected site.

Bulk Density - Soil profiles taken at site establishment.



Information Bubble



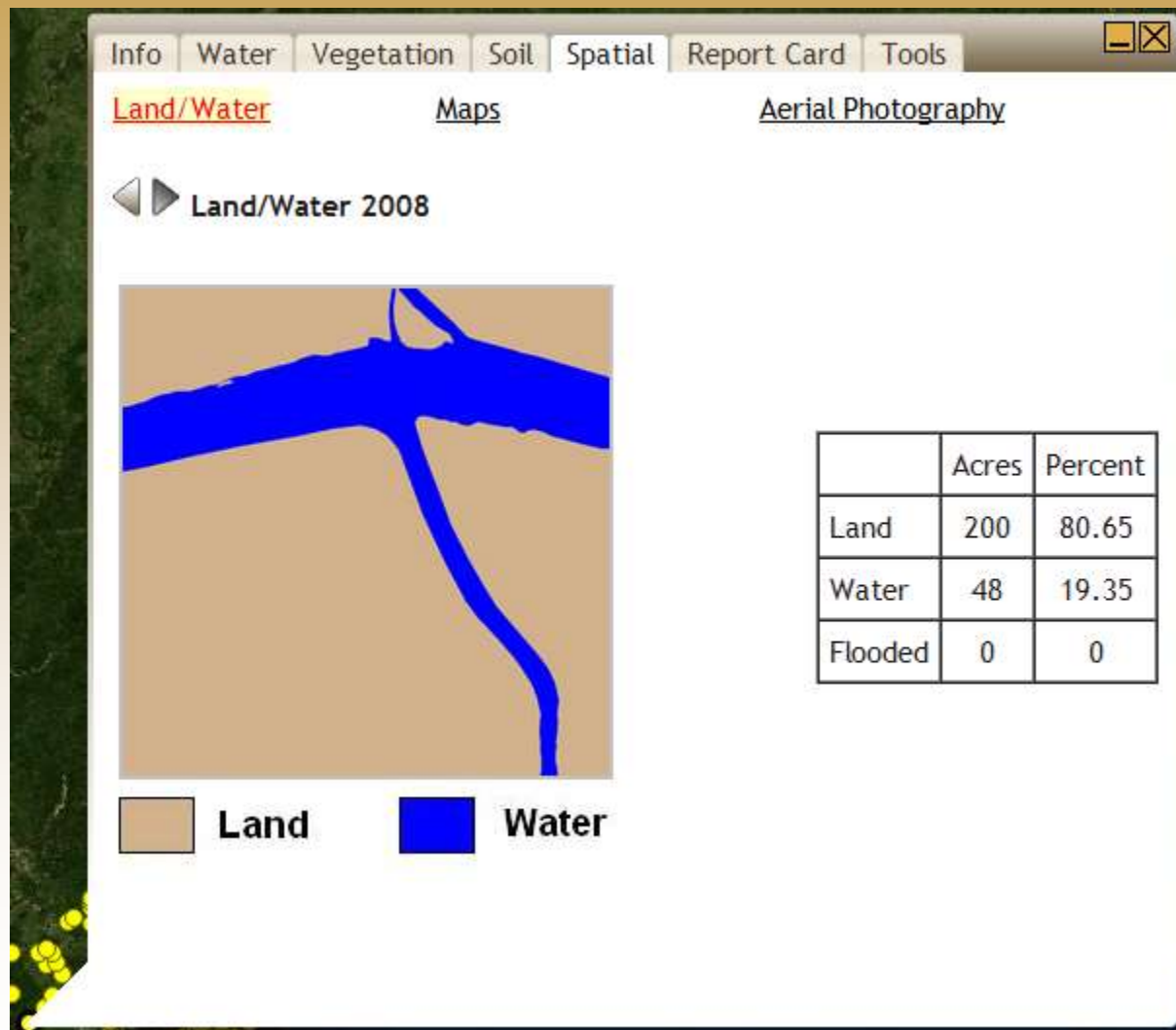
The Soil tab contains all soil information for the selected site.

Surface Elevation/Accretion – currently displays site level elevation change and accretion and gives rates for shallow subsidence.



CRMS Active Layer

Information Bubble



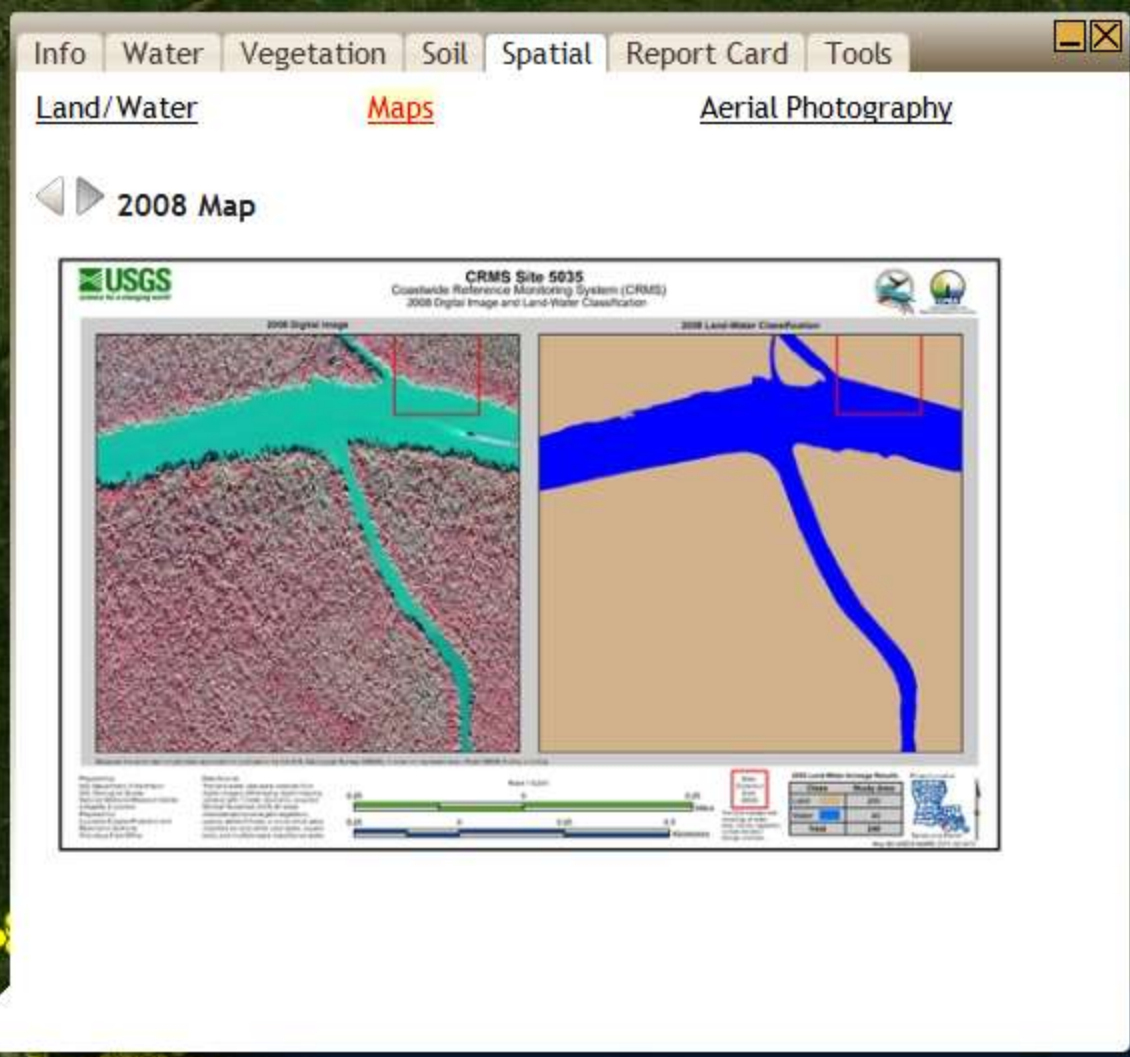
The Spatial tab contains all spatial information for the selected site.

Land/Water with acre breakdowns

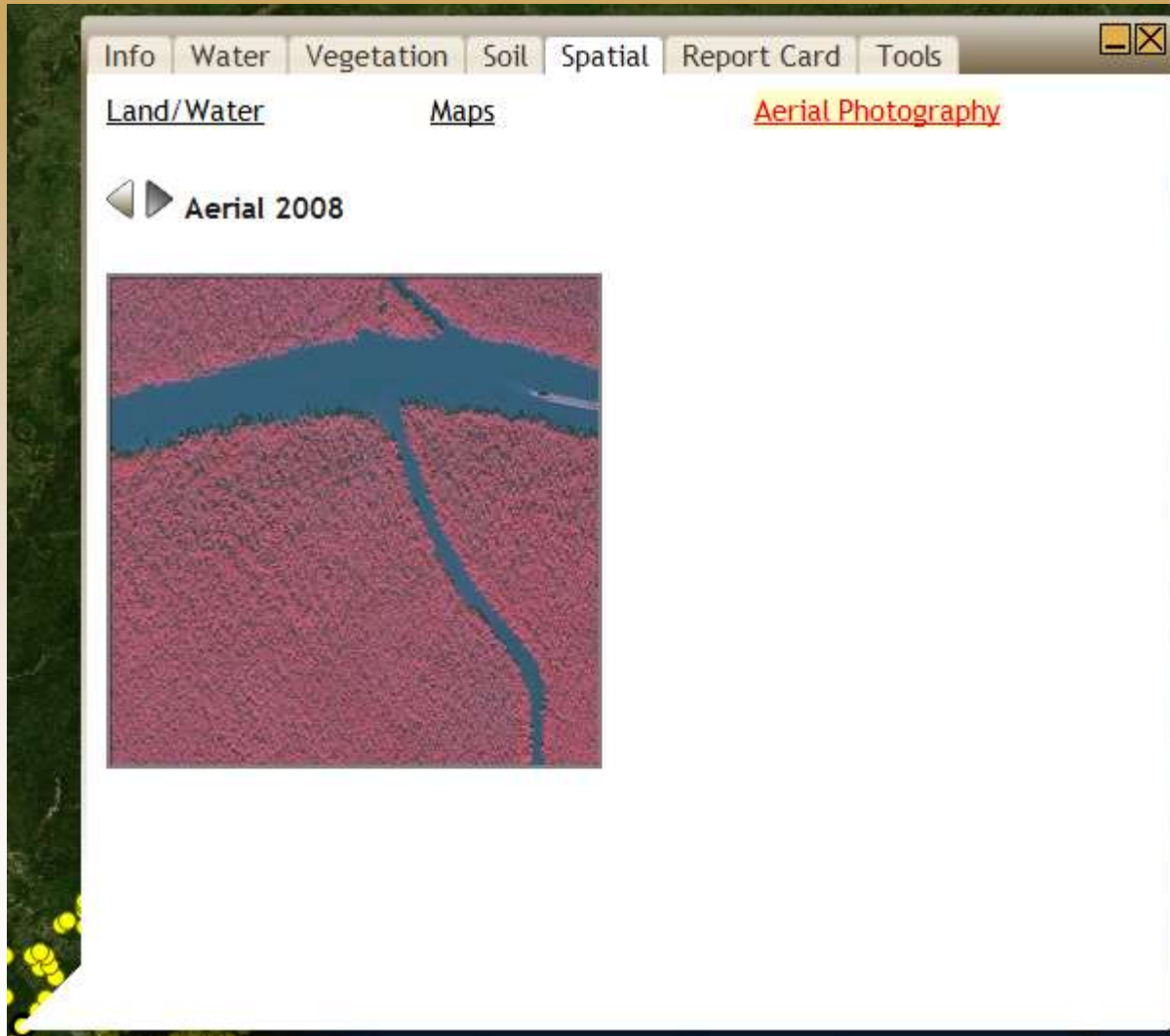
Information Bubble

The Spatial tab contains all spatial information for the selected site.

Site Specific maps at the 1km² scale.



Information Bubble



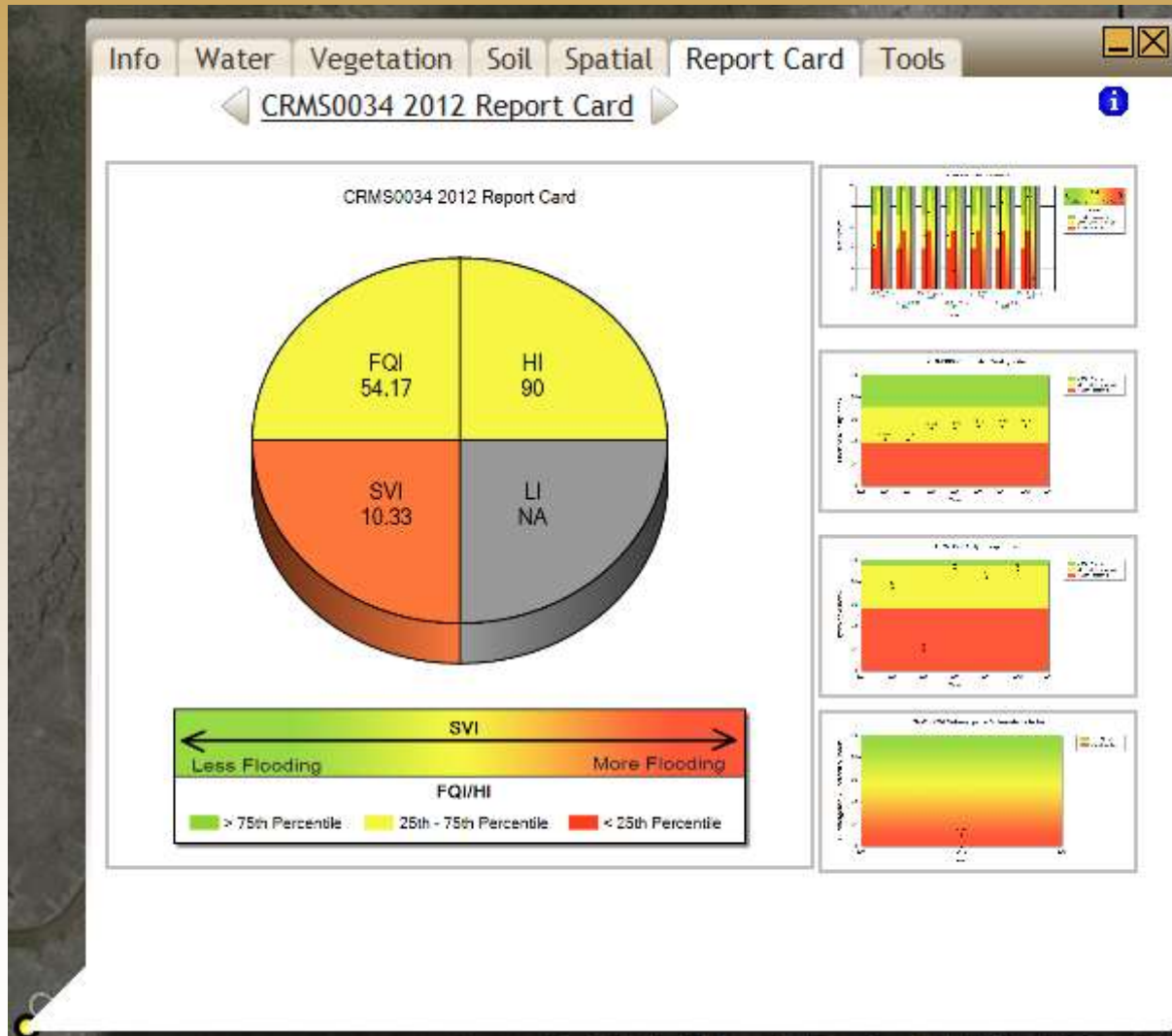
The Spatial tab contains all spatial information for the selected site.

Aerial Photography

Information Bubble

The Report Card tab contains all report card information for the selected site.

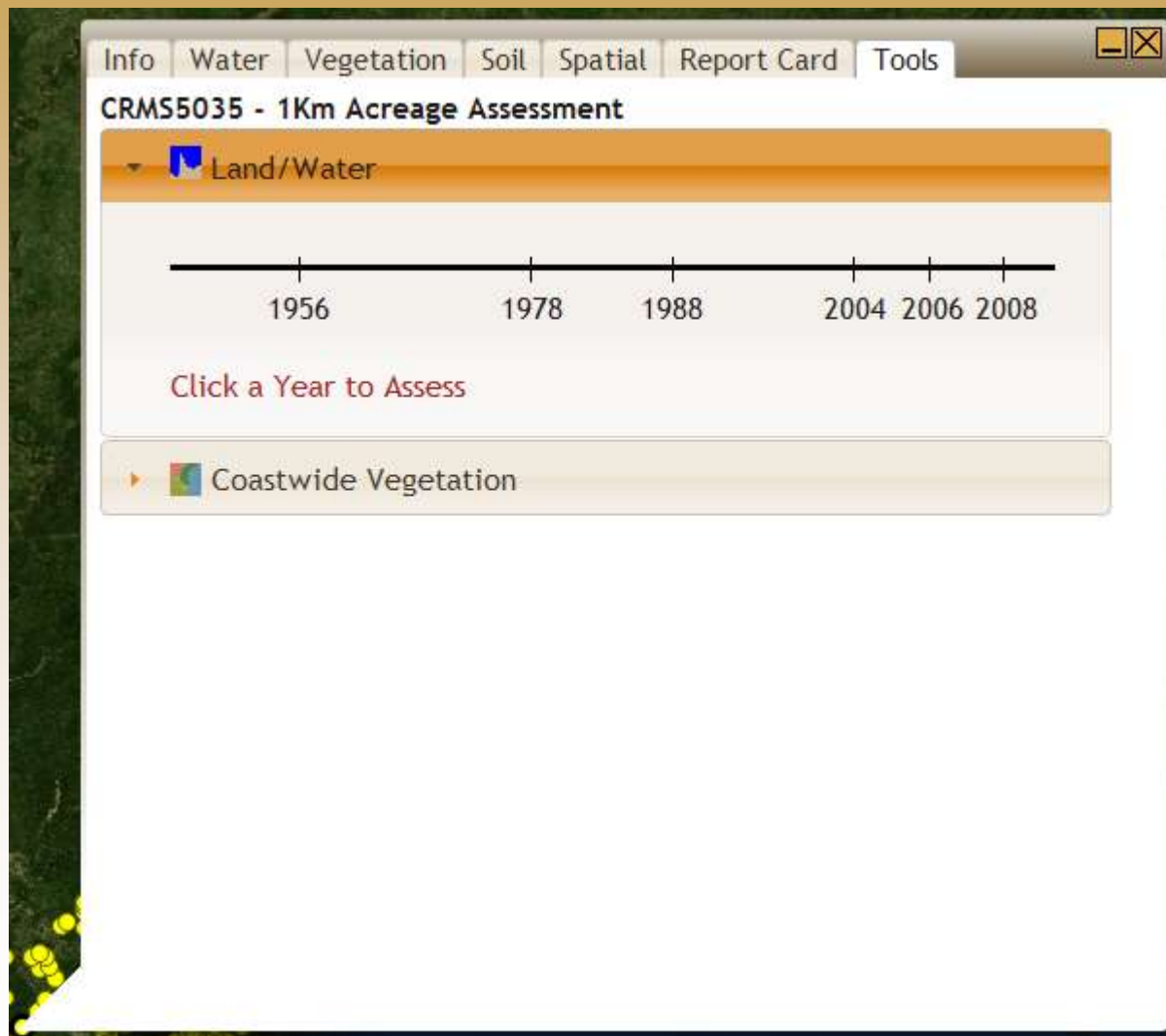
Report Card





CRMS Active Layer

Information Bubble



The Tools tab lets you do an Acreage Assessment on the selected site.

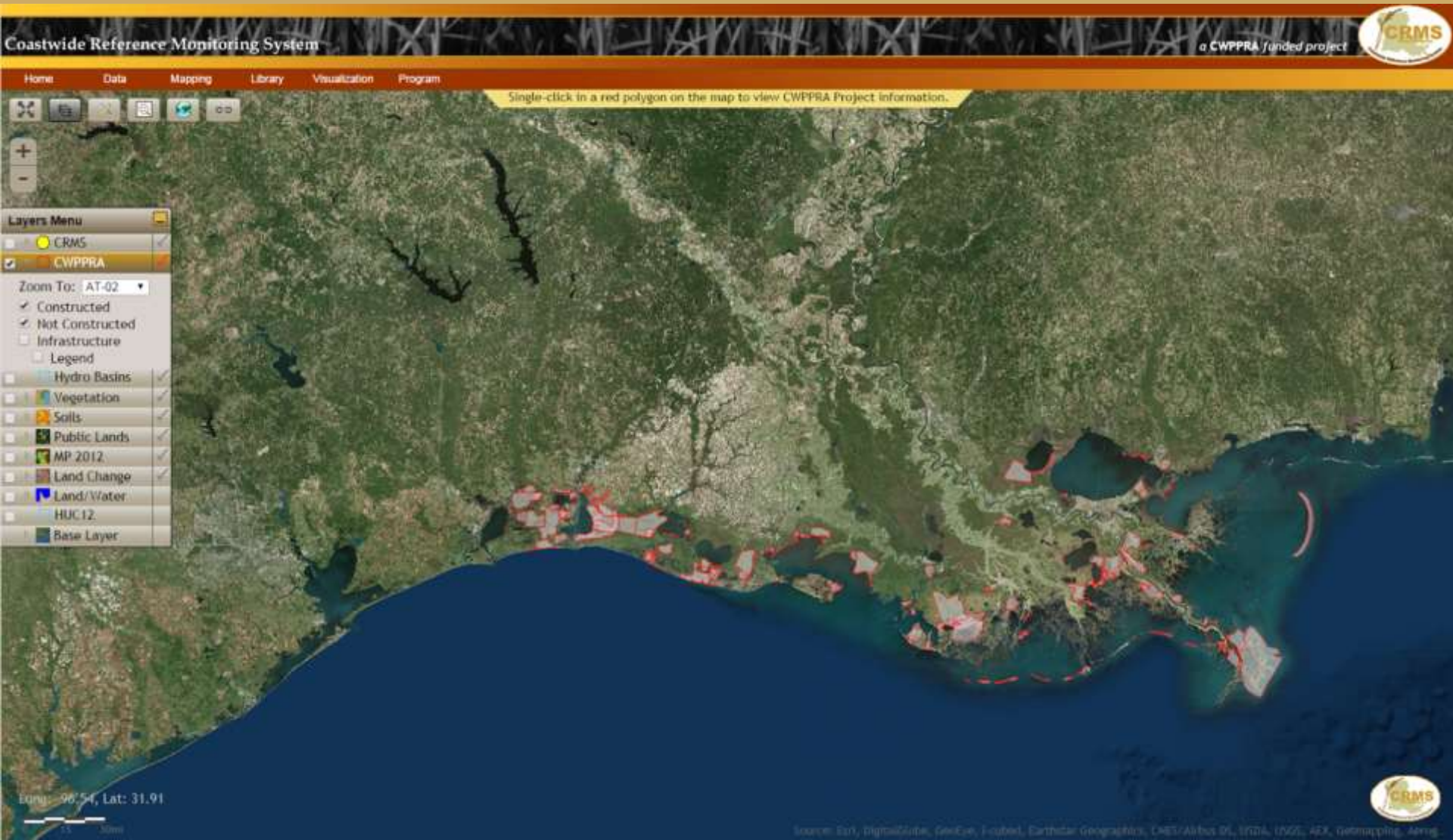
Acreage Assessment – Use the acreage assessment tool to determine acreage breakdowns of the available coastwide vegetation surveys or land/water data.



CWPPRA Active Layer



CWPPRA Active Layer





CWPPRA Active Layer



Zoom to function zooms to the project and shows the information bubble for it.

Checkbox adds/removes the Constructed projects layer to the map.

Checkbox adds/removes the Not Constructed projects layer to the map.

Checkbox adds/removes the Project Infrastructure layer to the map and shows the legend.



Information Bubble

Info | Water | Vegetation | Report Card | Tools

State ID: CS-20
Name: East Mud Lake Marsh Management
Sponsors: NRCS and OCPR
Type: Marsh Management
Links:
[CS-20 General Fact Sheet\(2.45 MB\)](#)
[CS-20 Monitoring Plan\(1.17 MB\)](#)
[CS-20 Comprehensive Monitoring Report\(2.77 MB\)](#)
[CS-20 Wetland Value Assessment\(1.03 MB\)](#)

Objectives:

- Prevent wetland degradation in the project area by reducing vegetative stress, thereby improving the abundance of emergent and submergent vegetation. This will be achieved through hydrologic structural management to reduce water levels and salinities.
- Stabilize shoreline of Mud Lake through vegetative plantings.

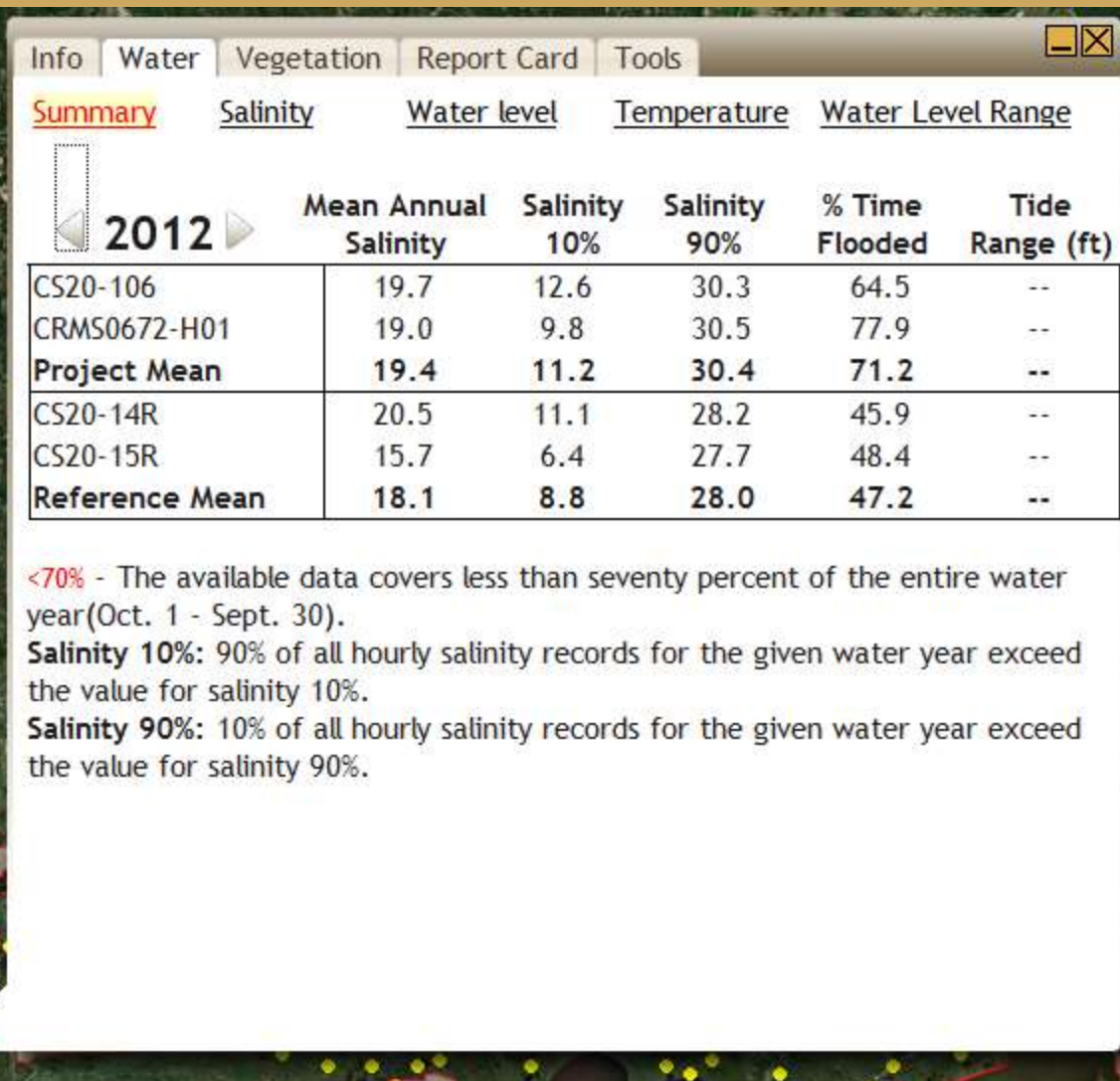
Goals:

- Decrease rate of marsh loss
- Increase vegetative cover along shoreline of East Mud Lake
- Increase coverage of emergent vegetation in shallow, open-water areas
- Increase abundance of vegetation in presently vegetated portions of project area

The information bubble appears when a CWPPRA project is clicked. The Project Info tab is automatically chosen when the bubble pops up on the screen.



Information Bubble



The Water tab contains all hydrologic information for the selected project.

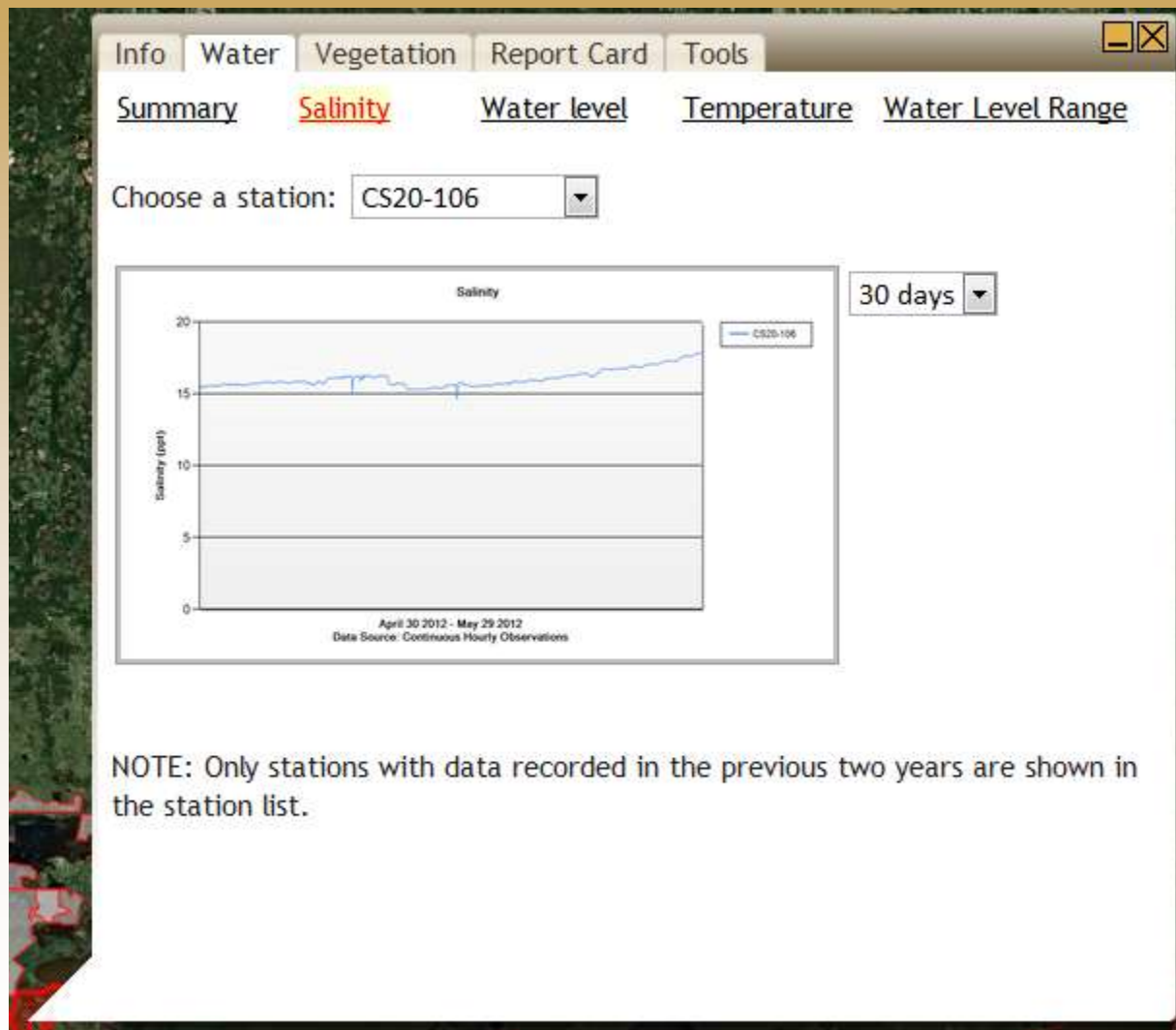
Summary – Gives a brief overview of the hydro data available for the project.



CWPPRA Active Layer Information Bubble

The Water tab contains all hydrologic information for the selected project.

Salinity – Charts most recent data for hydro stations located within the project.

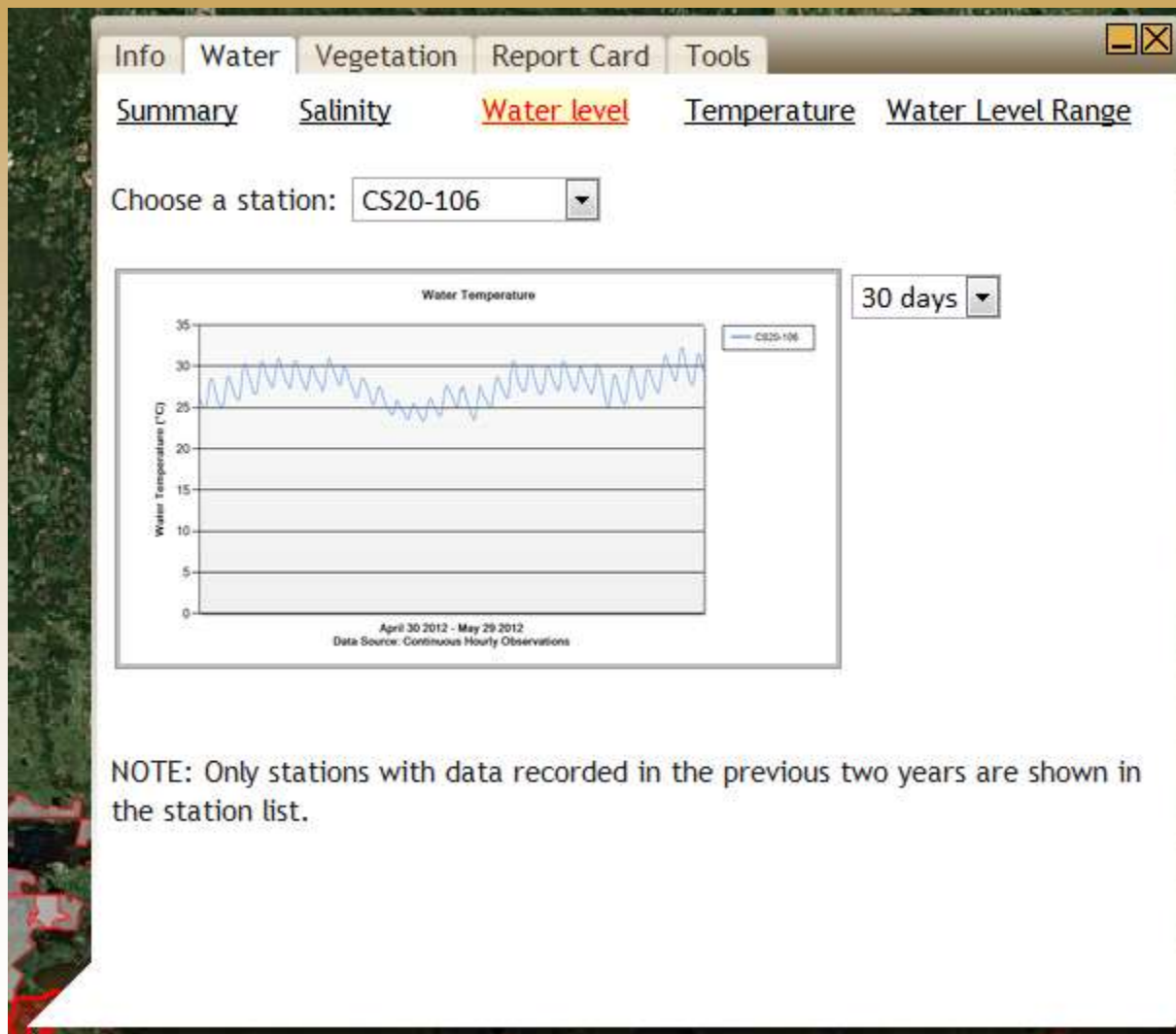




CWPPRA Active Layer Information Bubble

The Water tab contains all hydrologic information for the selected project.

Water Level – Charts most recent data for hydro stations located within the project.

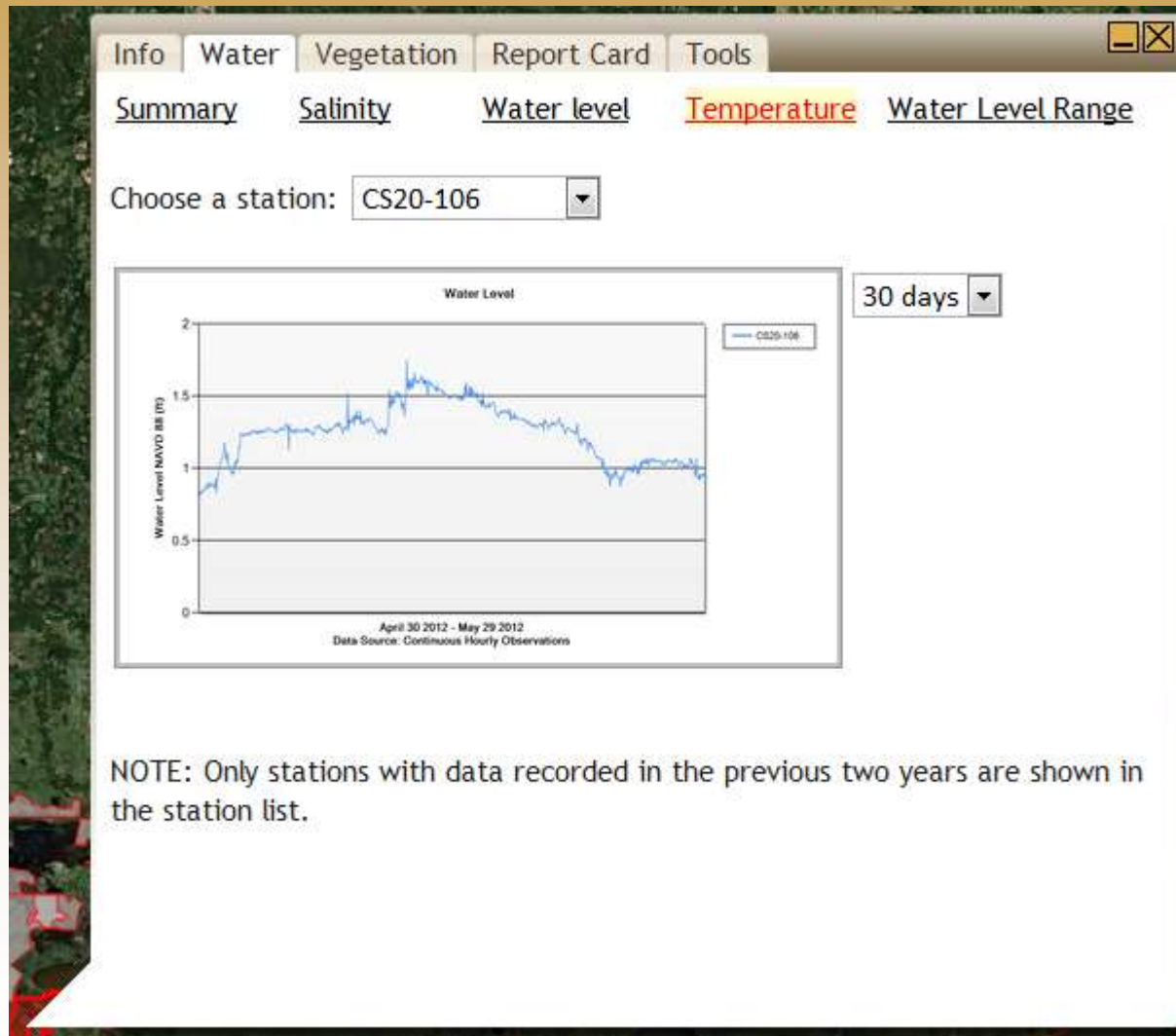




CWPPRA Active Layer Information Bubble

The Water tab contains all hydrologic information for the selected project.

Water Temperature –
Charts most recent data
for hydro stations located
within the project.





CWPPRA Active Layer

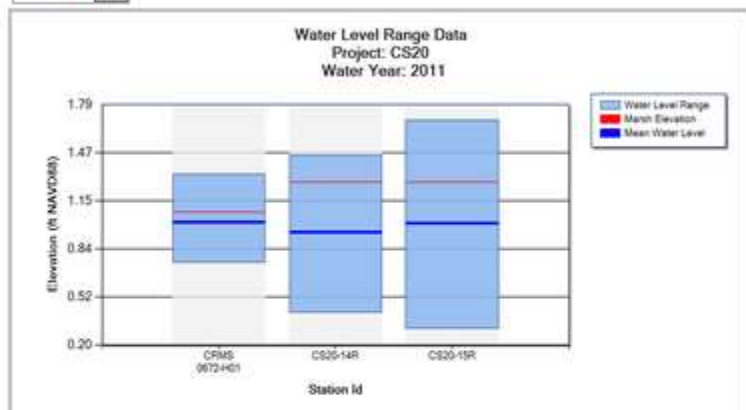
Information Bubble

The Water tab contains all hydrologic information for the selected project.

Info Water Vegetation Report Card Tools

Summary Salinity Water level Temperature Water Level Range

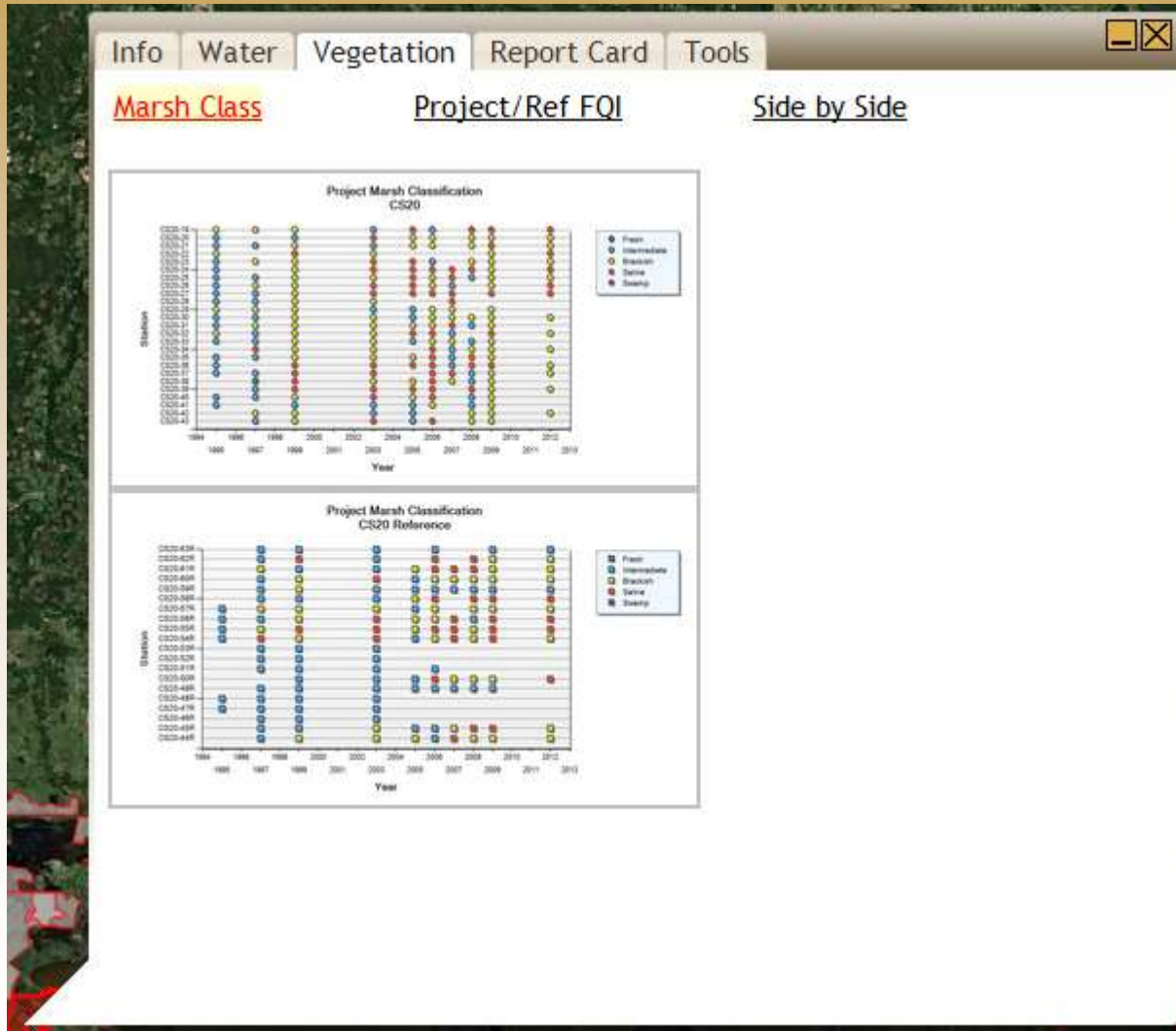
2011 ▼



What does this chart mean?

Water Level Range –
Charts water level range
data for hydro stations
located within the project.

Information Bubble



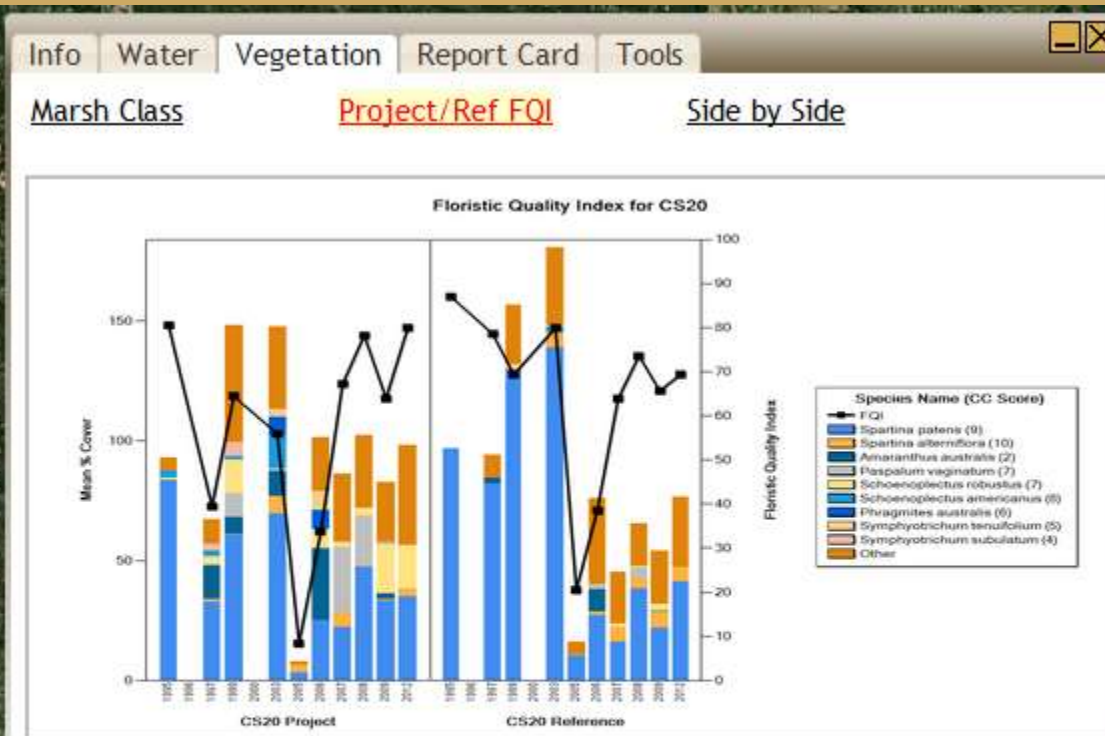
The Vegetation tab contains all vegetation information for the selected project.

Marsh Class – Charts project and project reference Marsh Classification over multiple years.

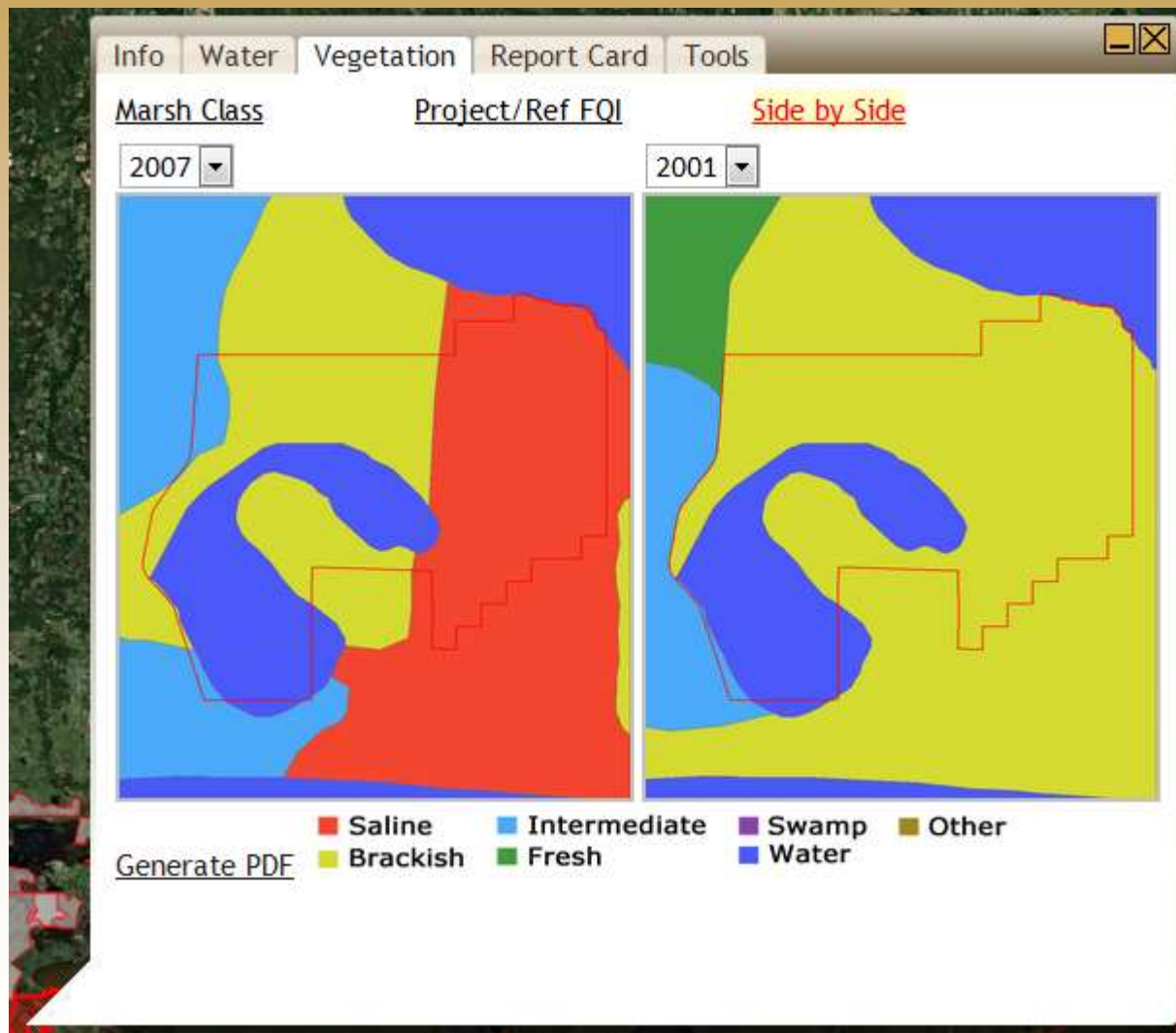
Information Bubble

The Vegetation tab contains all vegetation information for the selected project.

Project/Ref FQI – Project Scale Floristic Quality Index Chart.



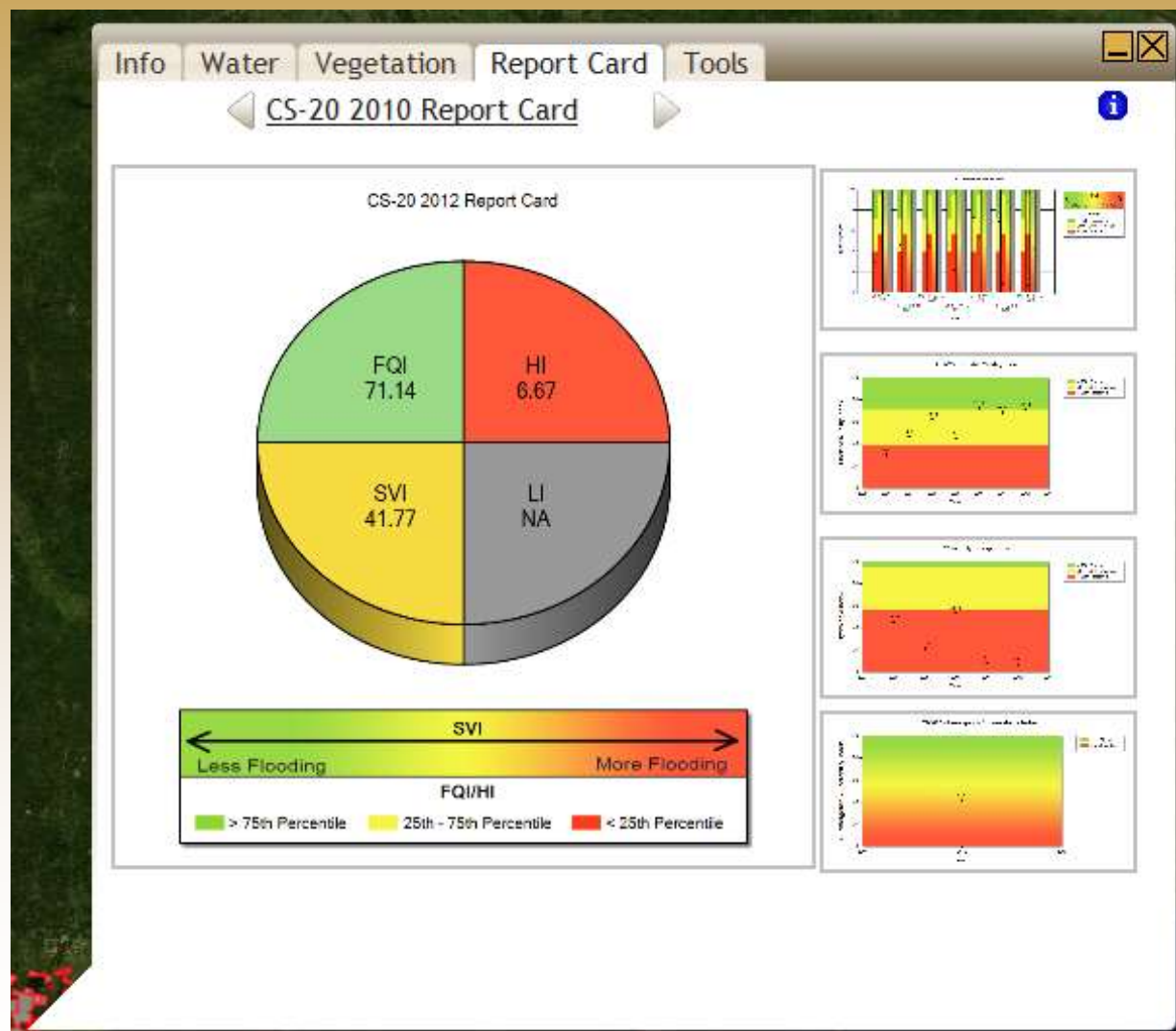
Information Bubble



The Vegetation tab contains all vegetation information for the selected project.

Side by Side – Side by side comparison of Marsh Class using the raster image created from helicopter surveys.

Information Bubble



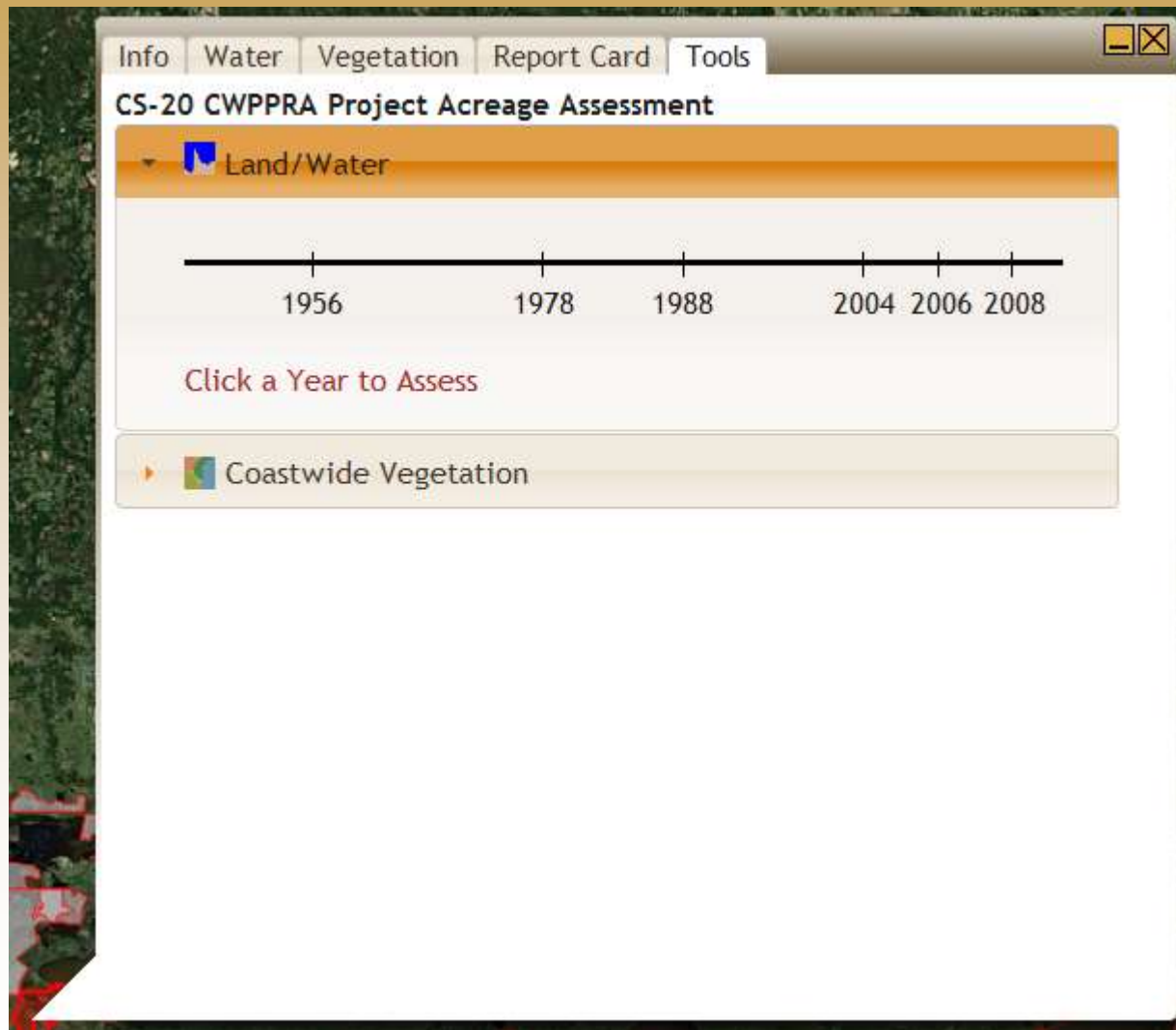
The Report Card tab contains all report card information for the selected project.

Report Card-Summary of project scale information compiled into a report card.



CWPPRA Active Layer

Information Bubble



The Tools tab lets you do an Acreage Assessment on the selected project.

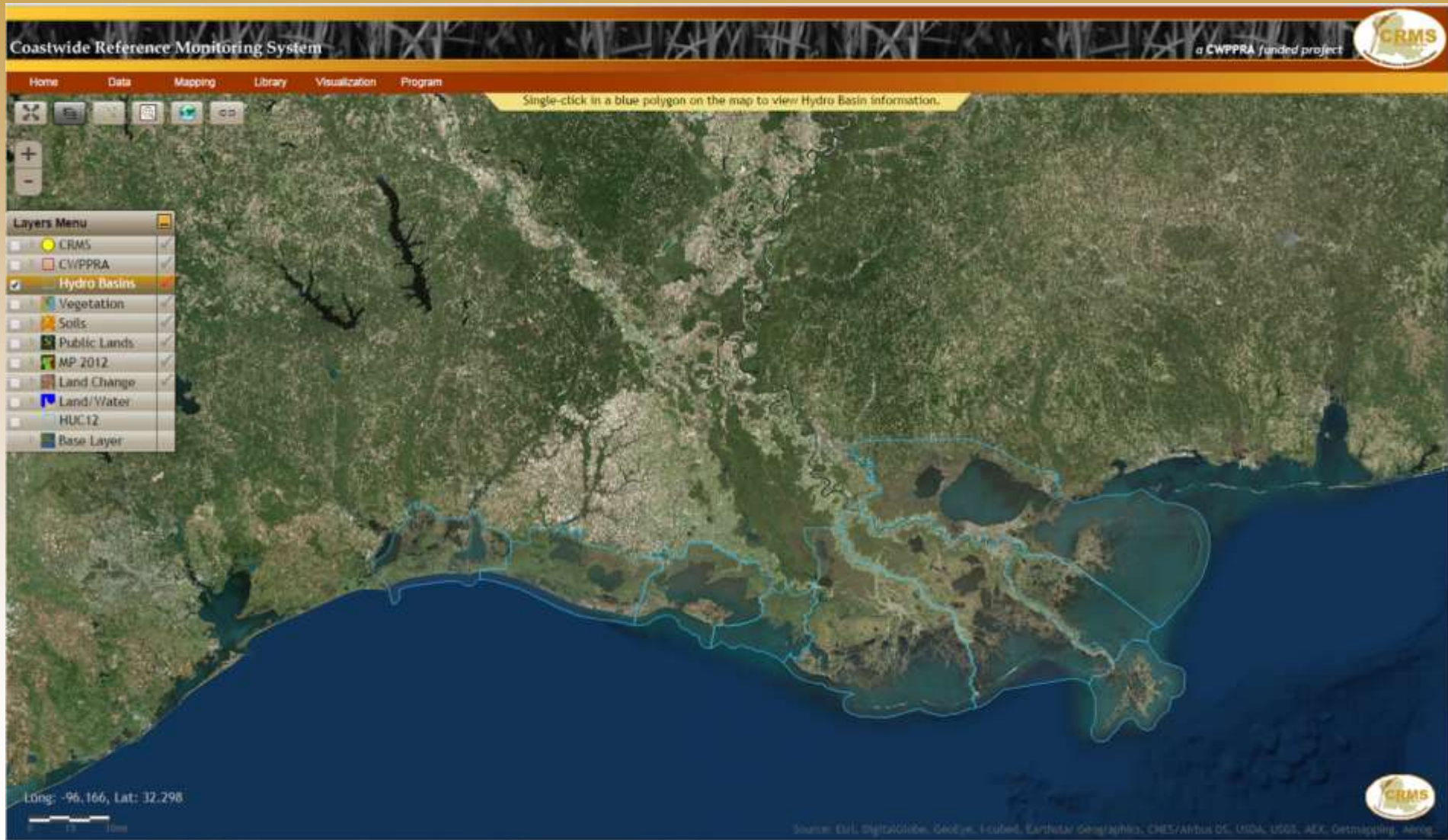
Acreage Assessment – Use the acreage assessment tool to determine acreage breakdowns of the available coastwide vegetation surveys or Land/Water data.



Hydro Basins Active Layer



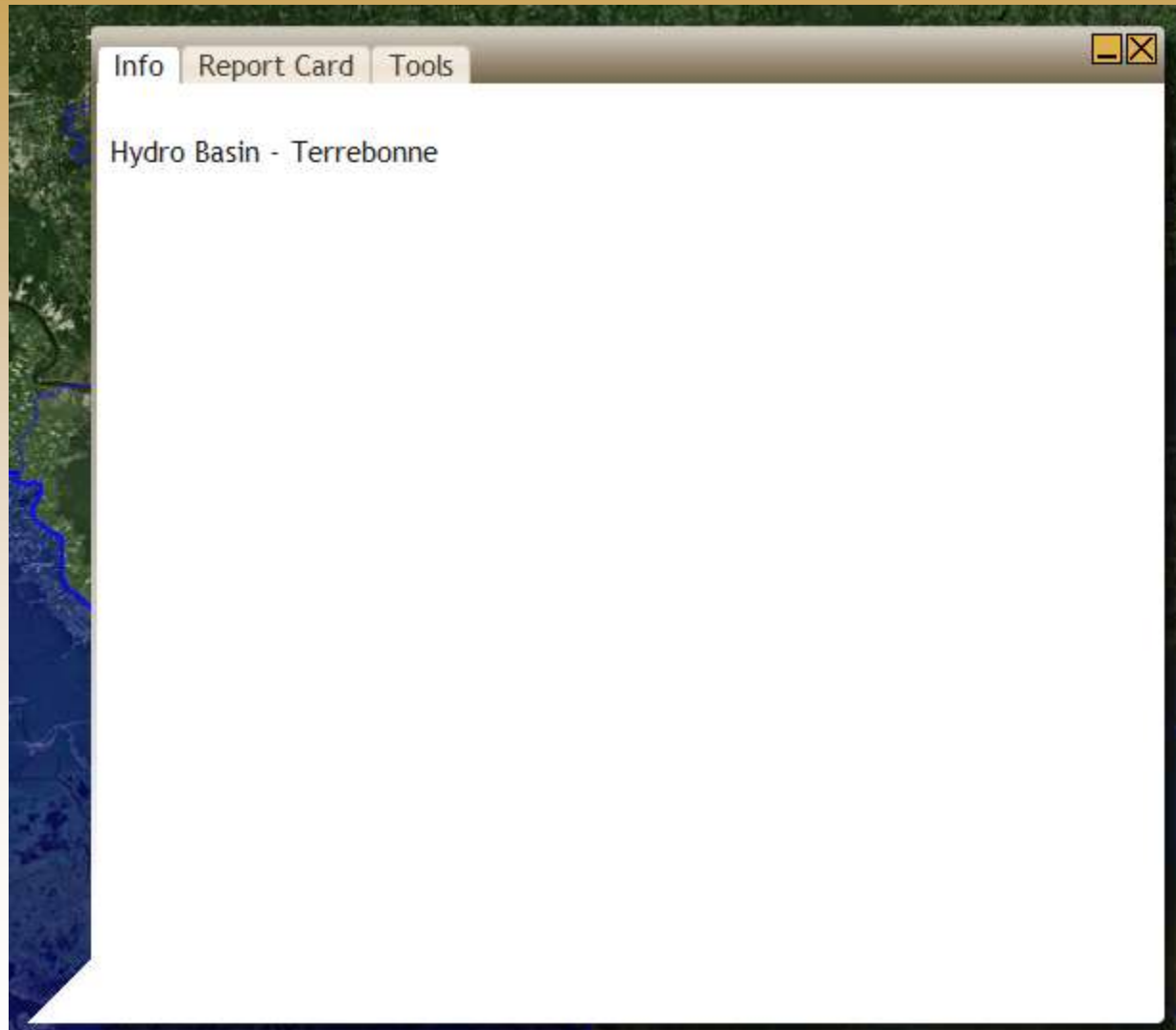
Hydro Basins Active Layer





Hydro Basins Active Layer

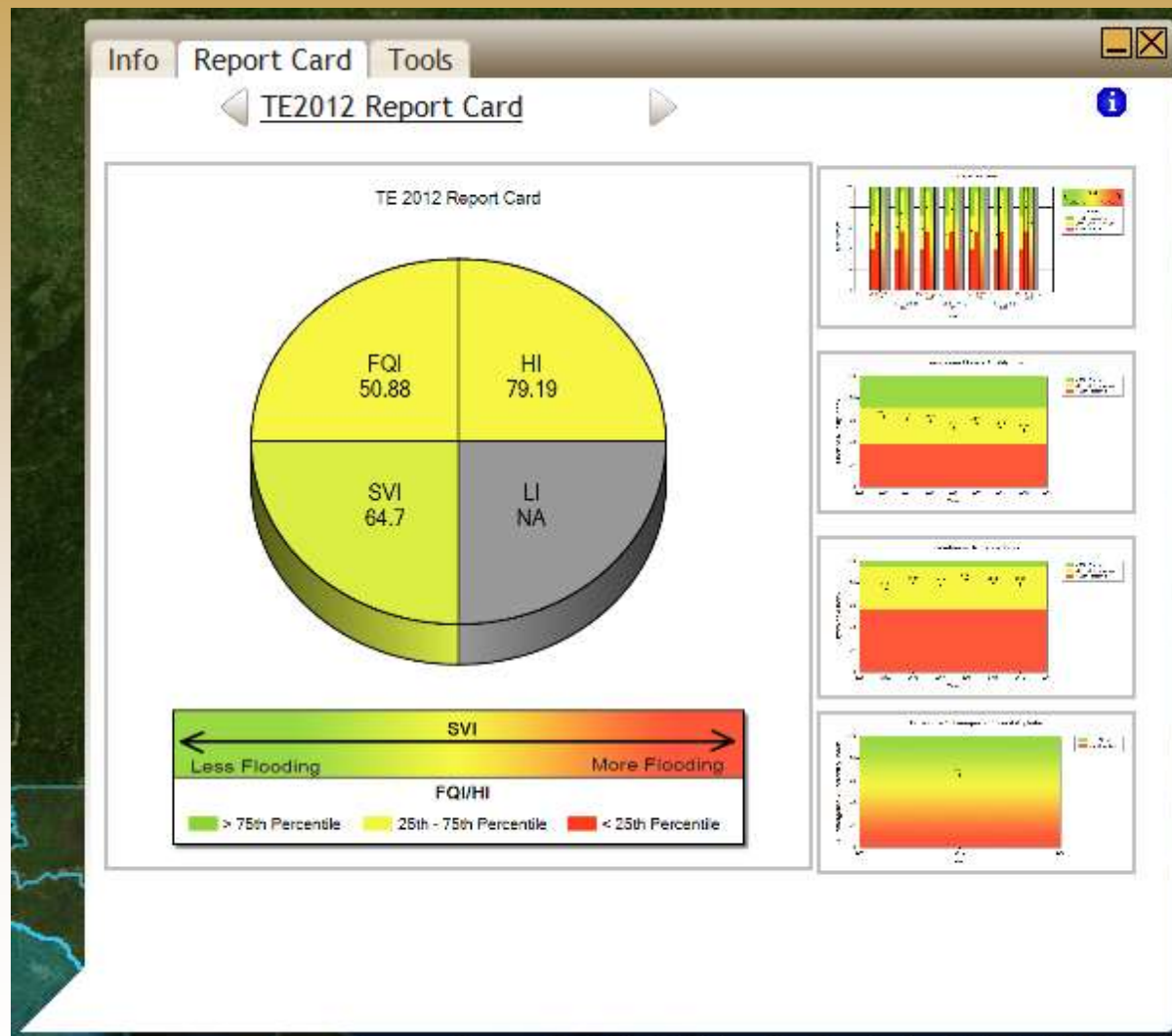
Information Bubble



The information bubble appears when a Hydro Basin is clicked. The Basin Info tab is automatically chosen when the bubble pops up on the screen.

More basin level descriptive information will be posted soon....

Information Bubble



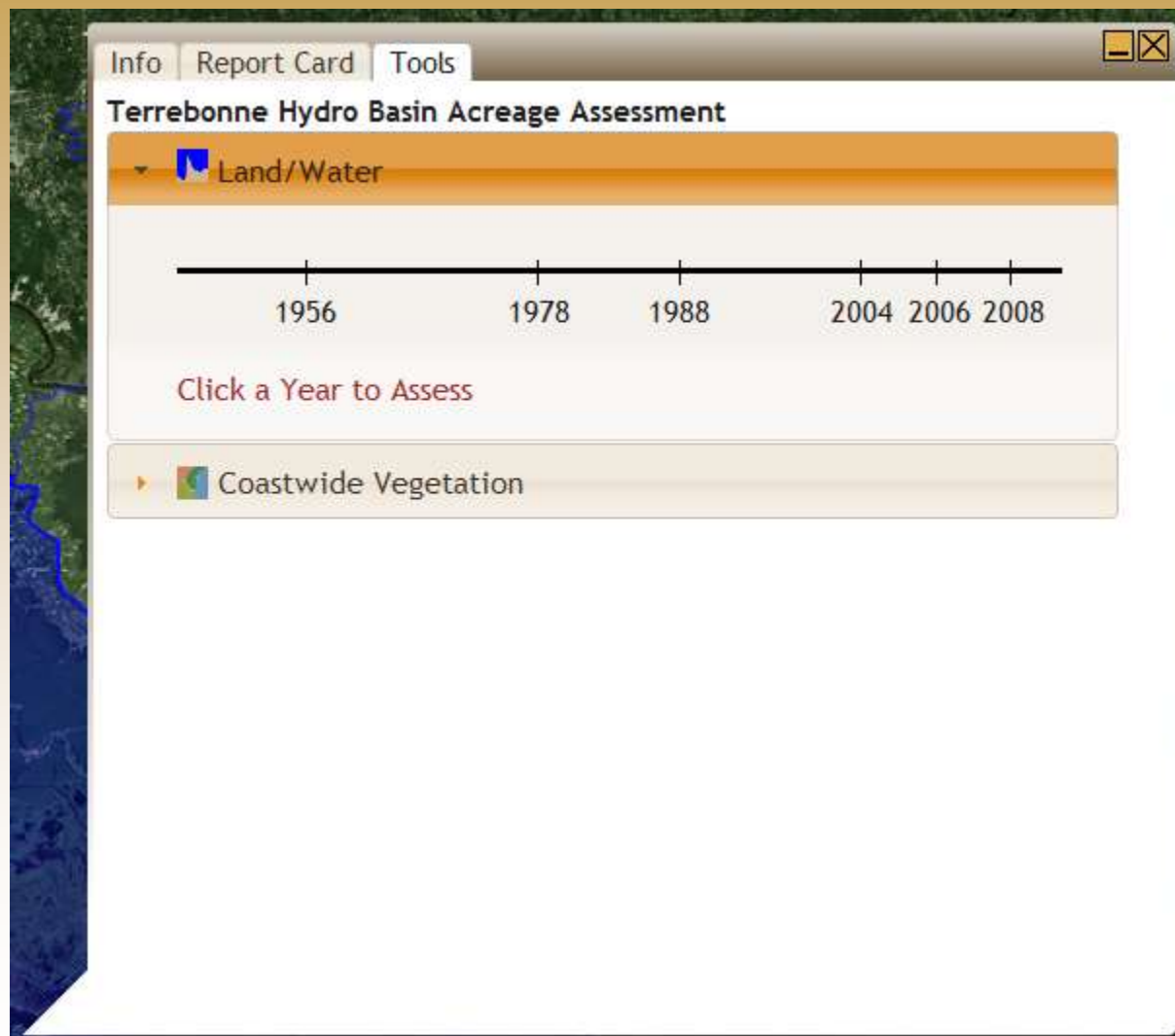
The Report Card tab contains all report card information for the selected basin.

Report Card – Summary of basin scale information compiled into a report card.



Hydro Basins Active Layer

Information Bubble



The Tools tab lets you do an Acreage Assessment on the selected basin.

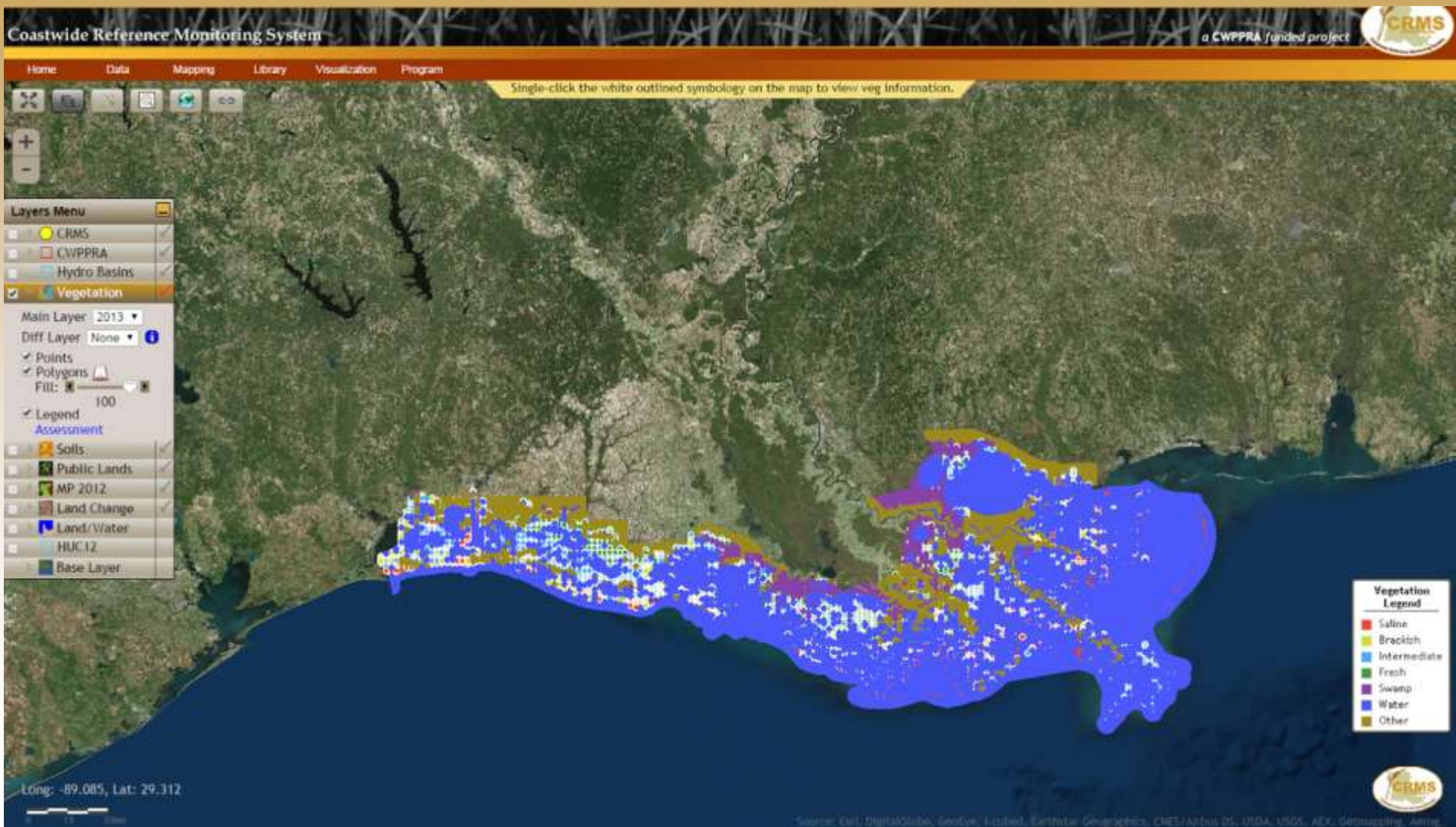
Acreage Assessment – Use the acreage assessment tool to determine acreage breakdowns of the available coastwide vegetation surveys or Land/Water data.



Vegetation Active Layer

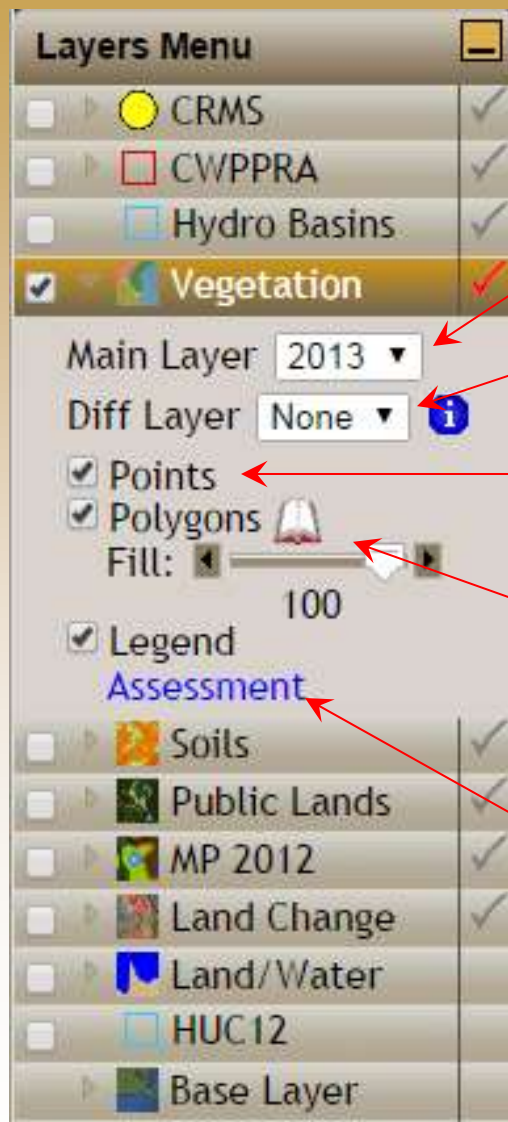


Vegetation Active Layer





Vegetation Active Layer



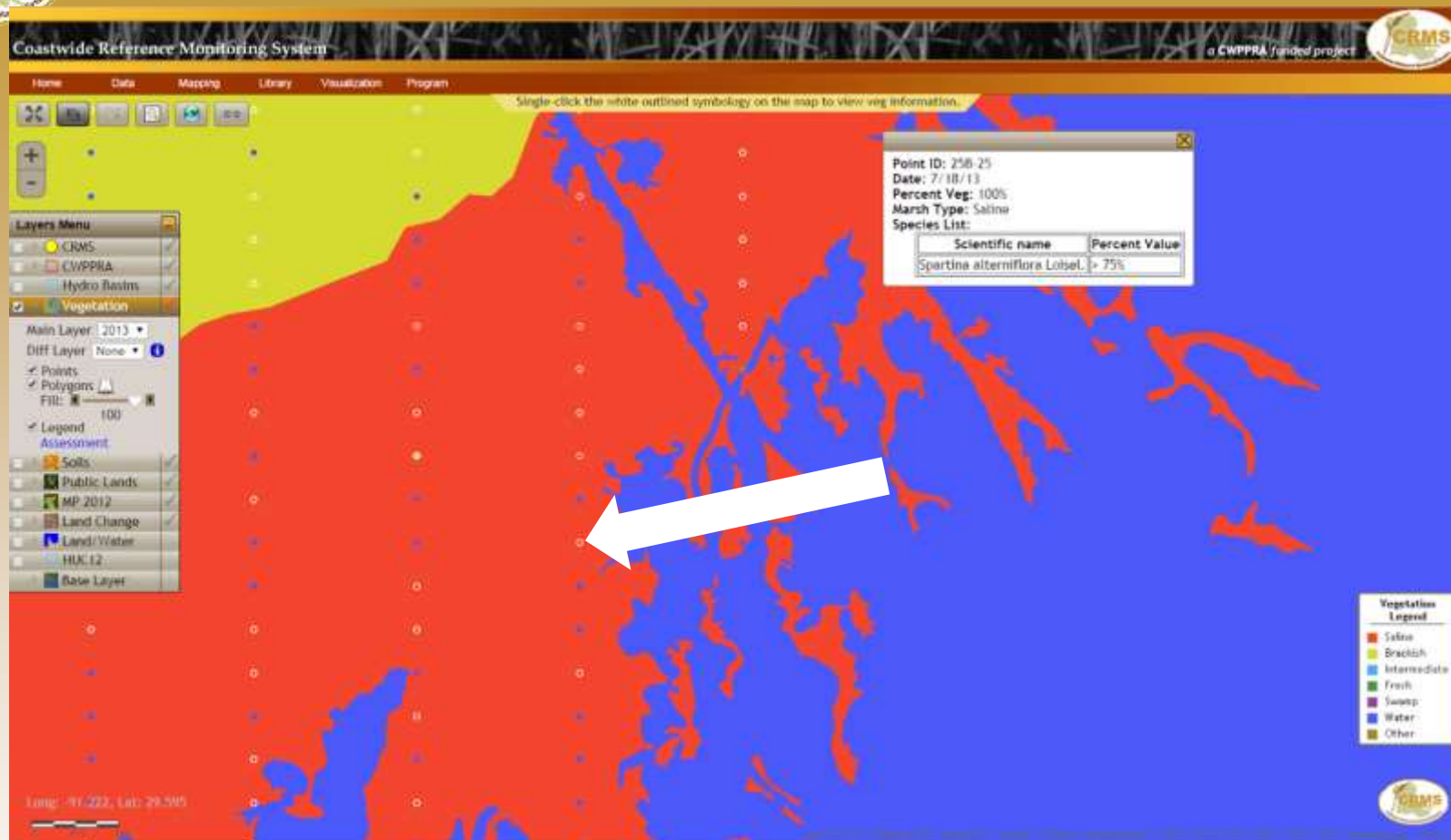
Main Year selects the primary polygon layer on the map.

Diff Year selects the secondary polygon layer on the map.

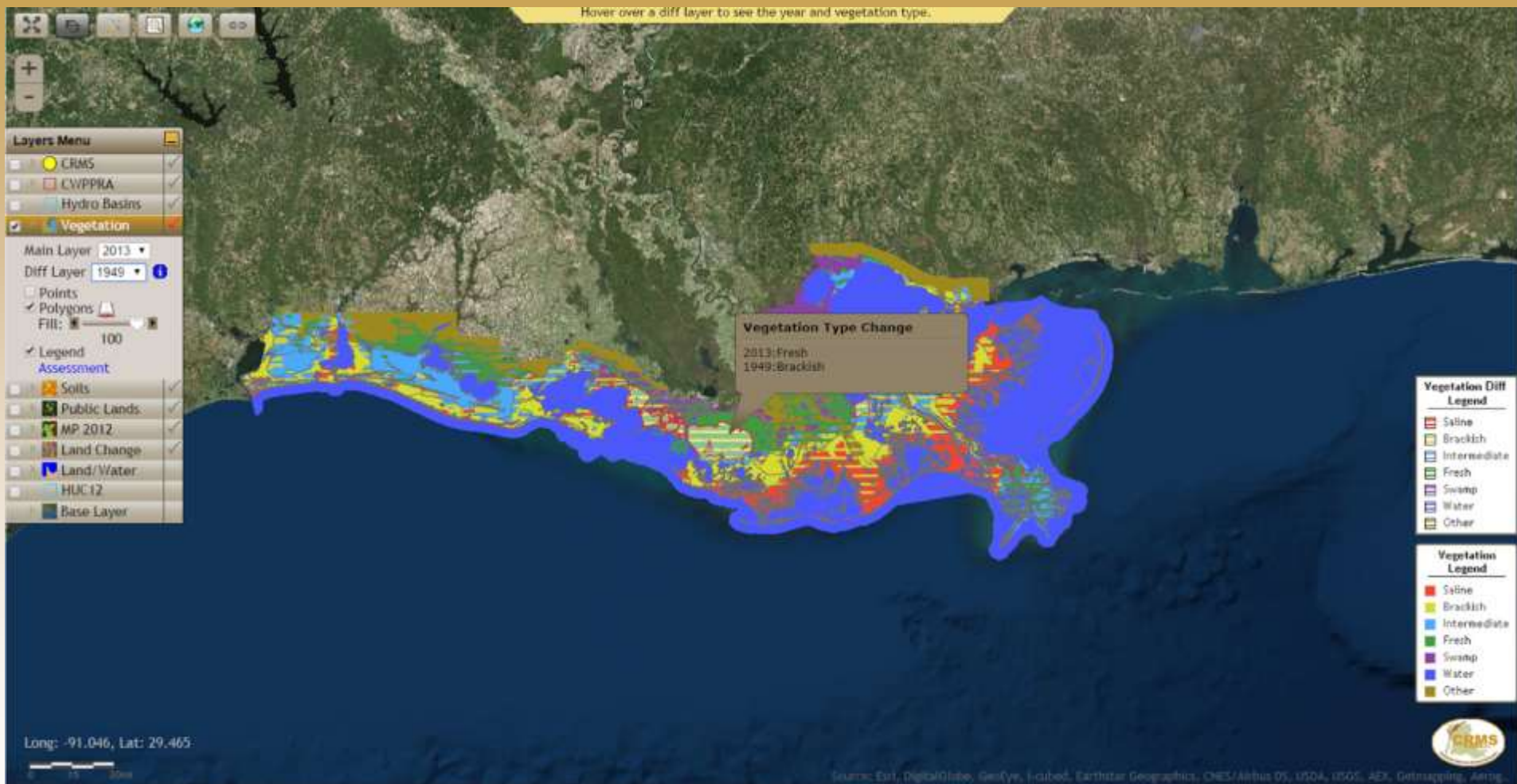
Points checkbox adds/removes the Vegetation data points.

Checkbox adds/removes the Vegetation Polygons layer. The slider changes the transparency of the layer.

Assessment link invokes the acreage assessment tool menu for the currently selected year.



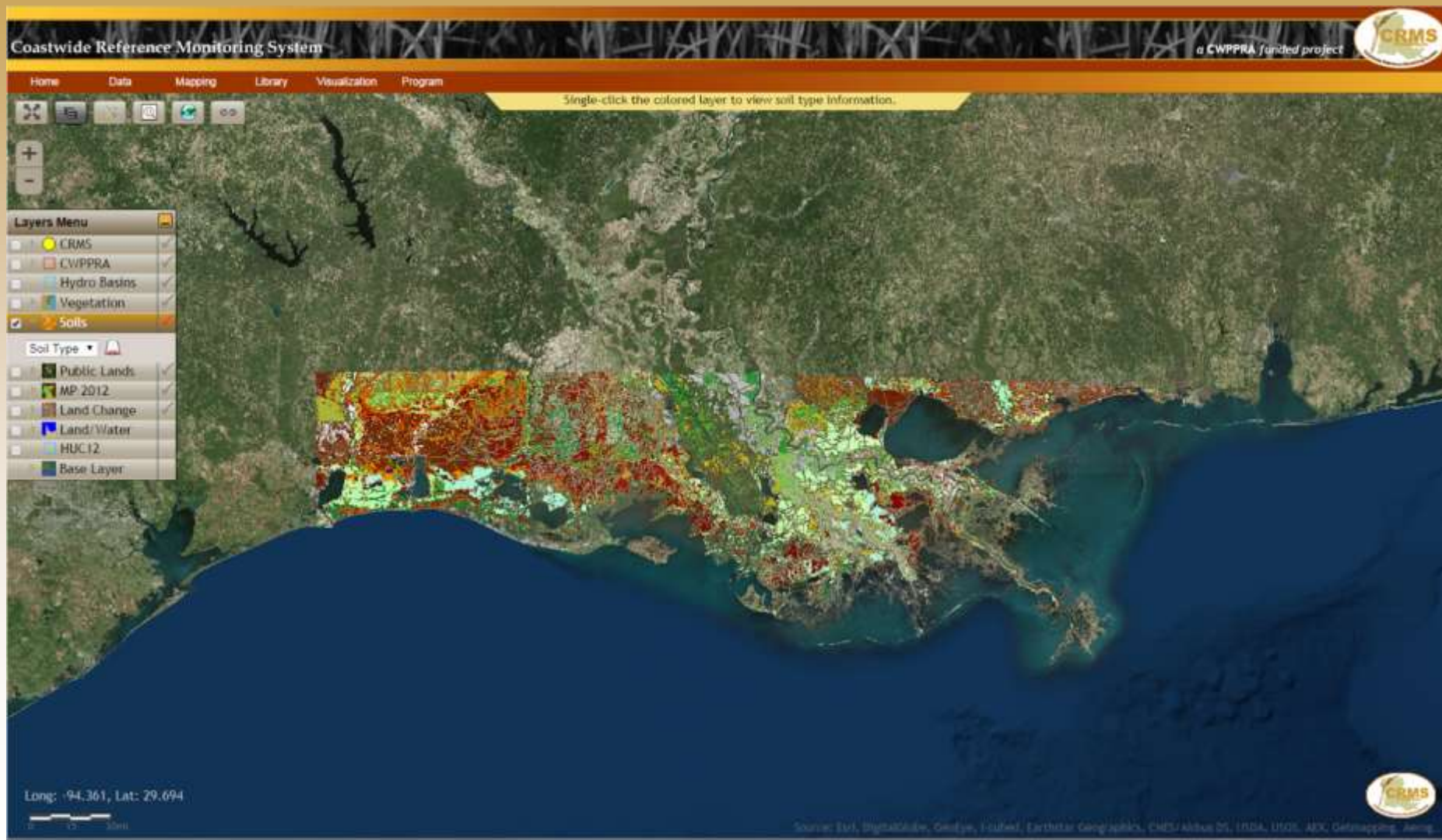
If Points is checked, the site specific vegetation data is shown when clicked.



The Vegetation Type Change is shown when two different years are chosen for the Main Layer and Diff Layer.

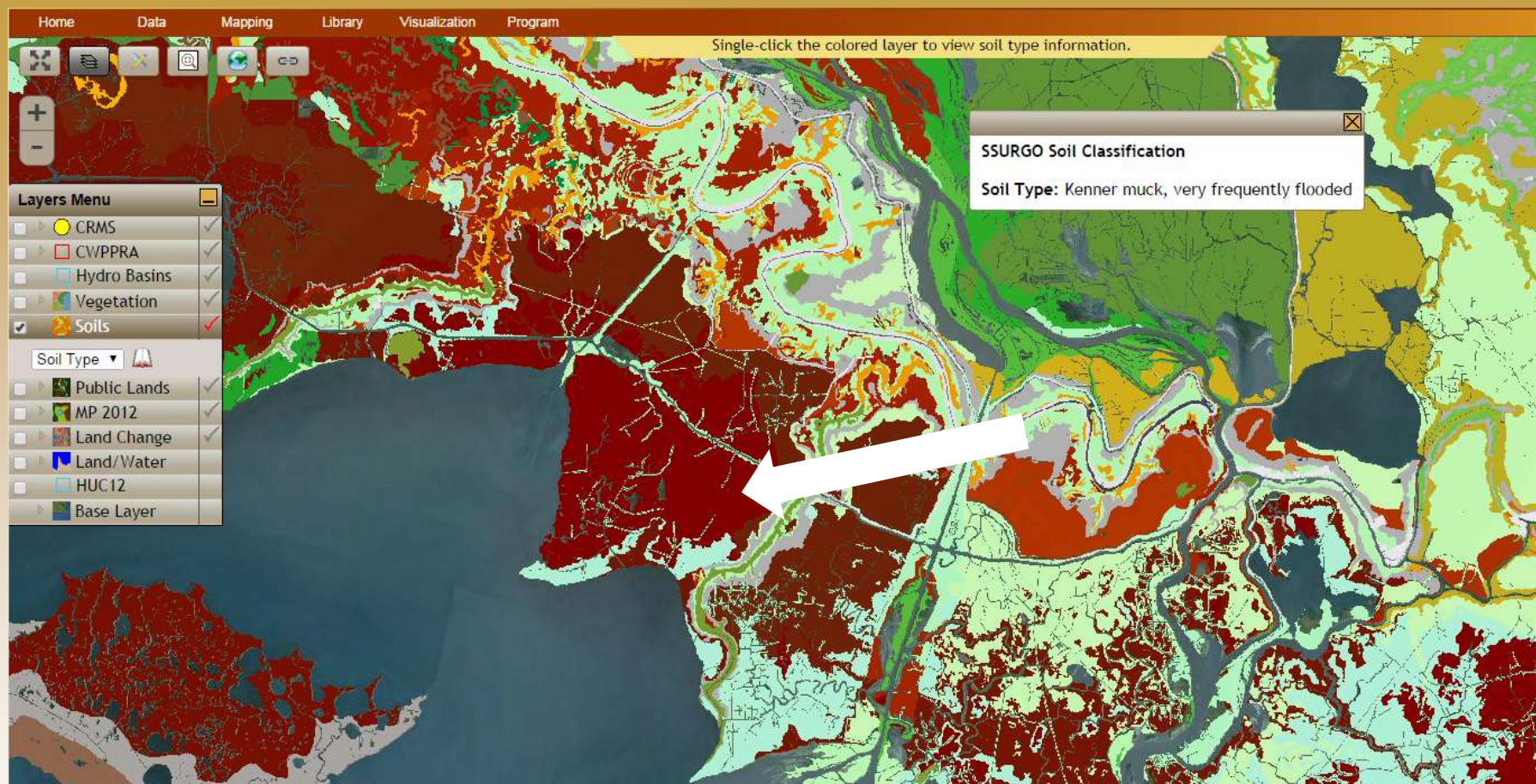


Soils Active Layer





Soils Active Layer



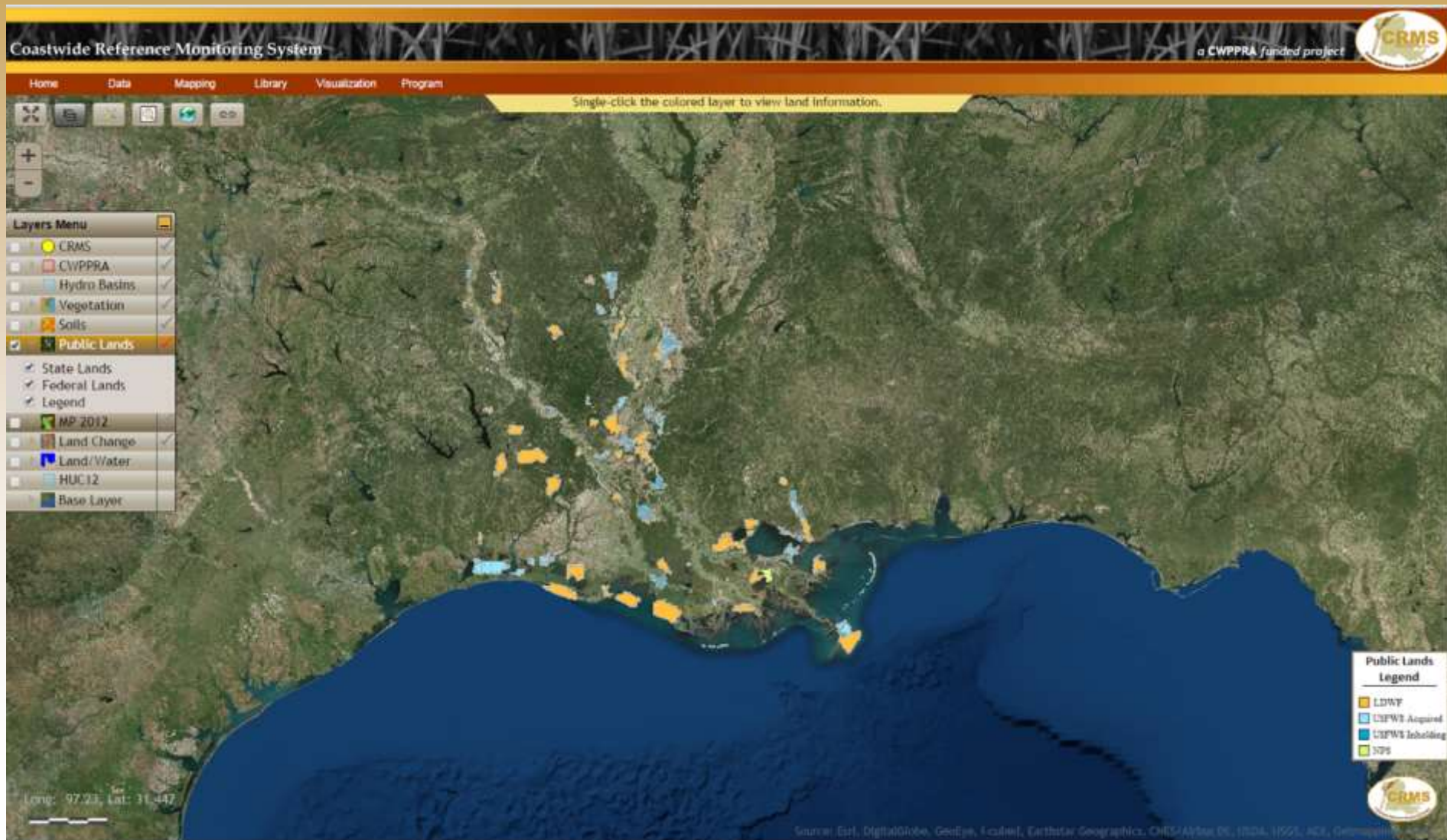
The Soil Type information window pops up when a soil area is clicked.



Public Lands Active Layer



Public Lands Active Layer



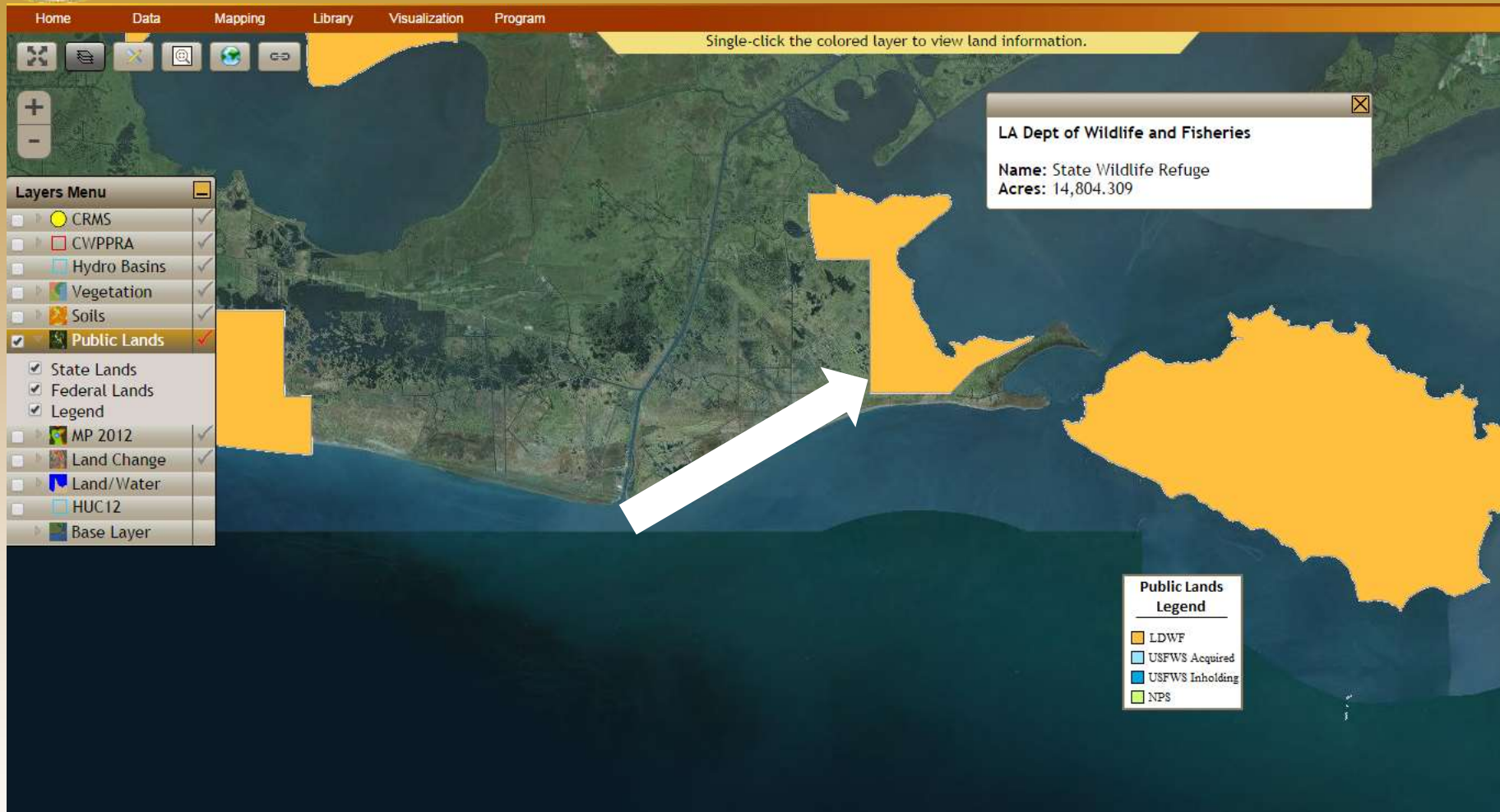


Public Lands Active Layer



State Lands checkbox adds/removes LA Department of Wildlife and Fisheries layer.

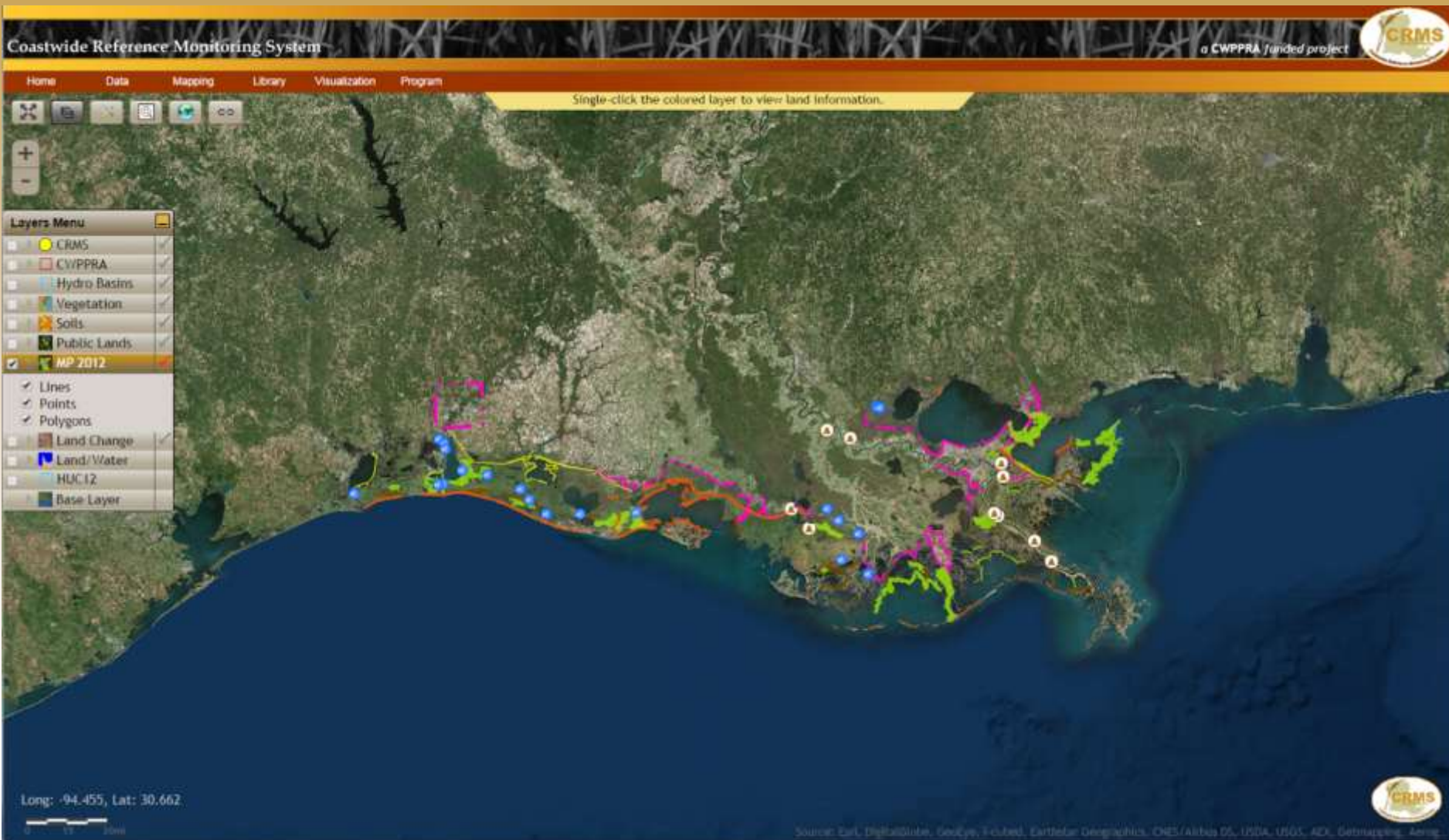
Federal Lands checkbox adds/removes National Park Service and US Fish and Wildlife Service.



The Public Lands information window pops up when a Public Lands polygon is clicked.



Master Plan 2012





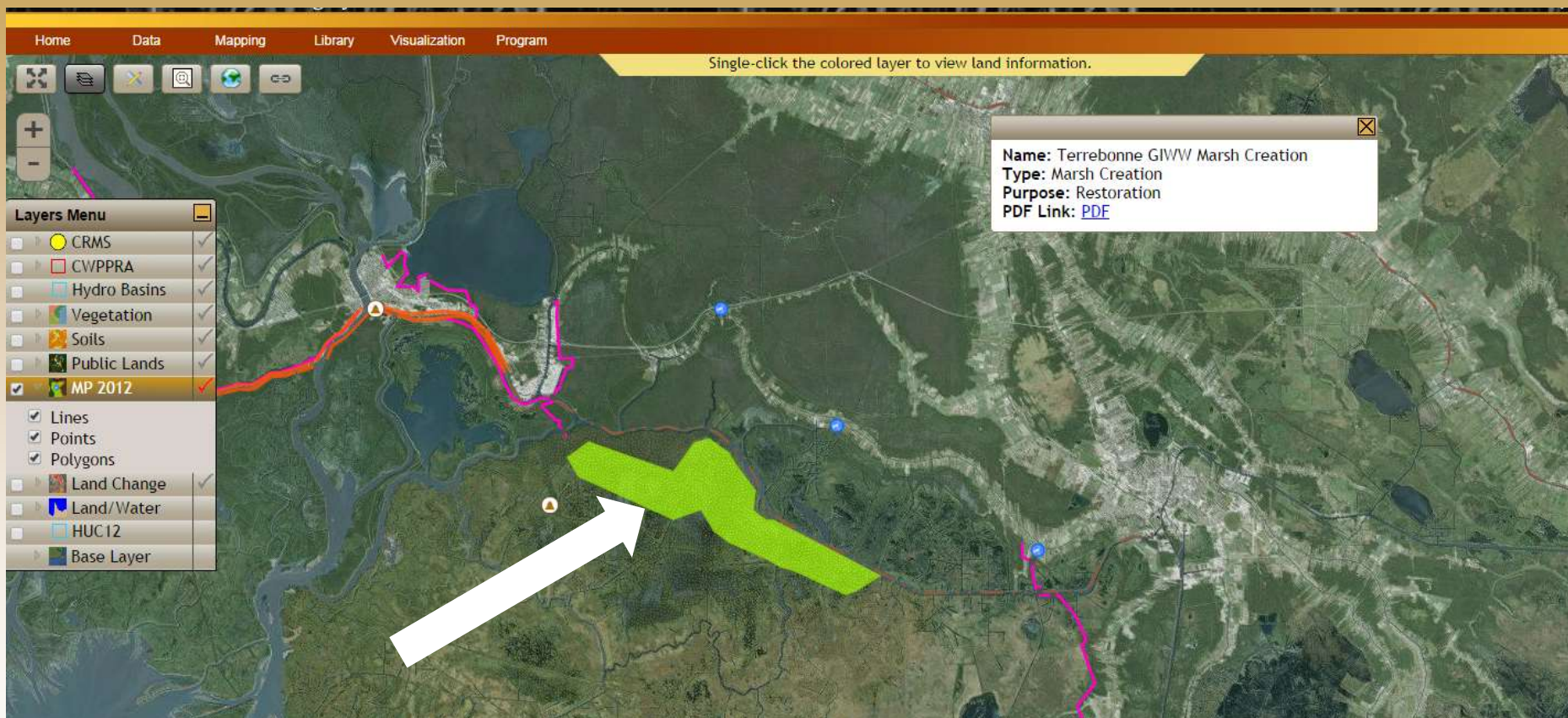
Master Plan 2012



Checkbox to put the lines of the Master Plan 2012 on the map

Checkbox to put the points of the Master Plan 2012 on the map

Checkbox to put the polygons of the Master Plan 2012 on the map

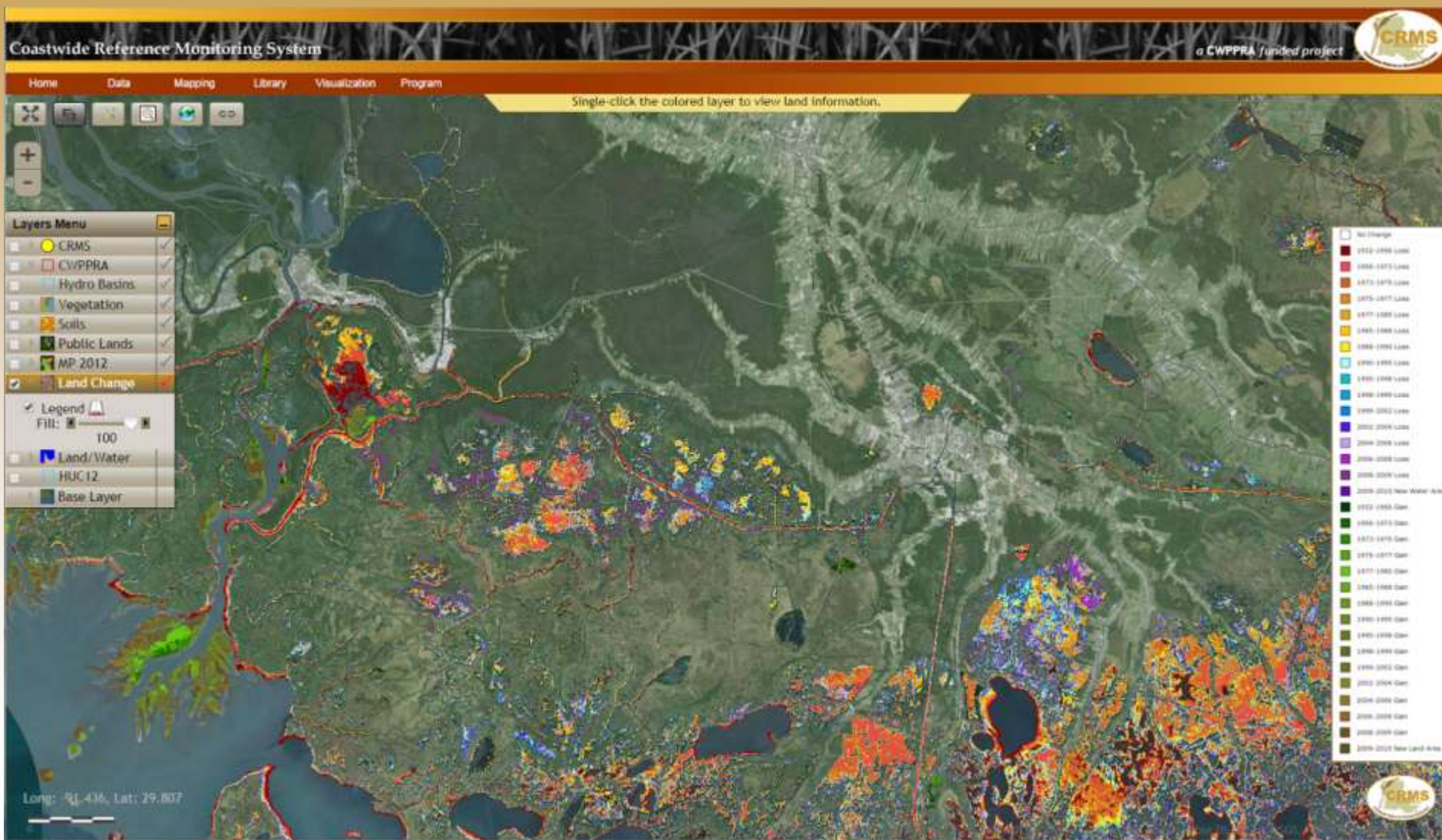


The Master Plan information window pops up when a Master Plan polygon is clicked.



Land Change Layer

Couvillion et al., Land Area Change in Coastal Louisiana from 1932 to 2010





Land Change Layer



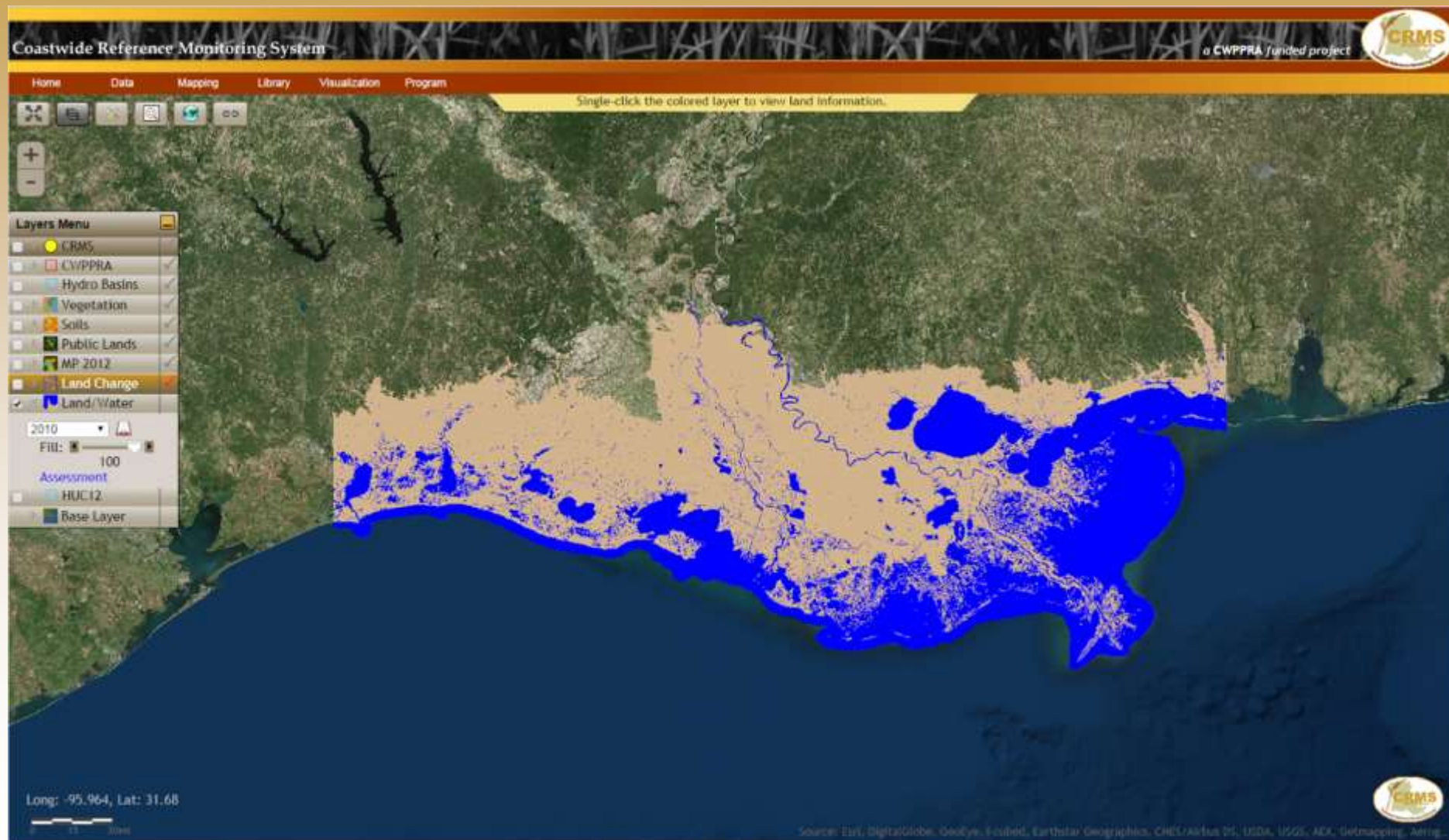
Checkbox to put the legend on the map.

Slider to change the opacity of the layer on the map.



Other Layers

Land/Water





Other Layers

Land/Water



Changes the Land/Water layer's year.

Slider changes the transparency of the layer.

Assessment link invokes the acreage assessment tool menu for the currently selected year.



HUC12 Layer

NRCS's Watershed Boundary Dataset



Base Layers





Other Layers

Base Layers



DOQQ radio buttons add the selected DOQQ layer to the map.

Other radio buttons change the base/background layer of the map.

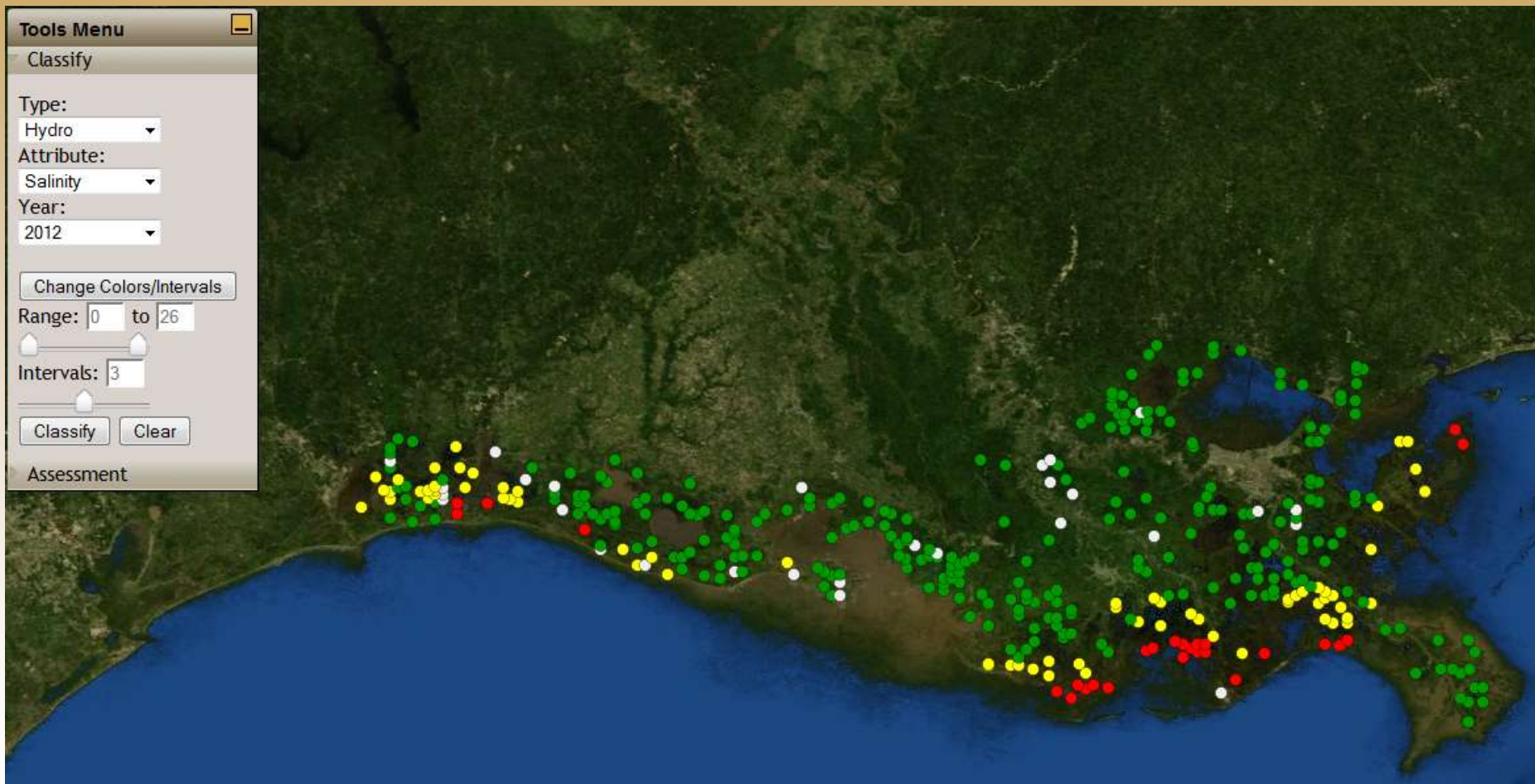
Classify Tool

A Type, Attribute, and Year must be chosen to Classify the CRMS sites. All of the Attributes except for the Marsh Classification have a color chooser option.



- Vegetation
 - FQI
 - Marsh Classification
- Hydro
 - Hydro Index
 - Salinity
 - Water Level
- Soil
 - Calculated Elevation Change (CEC)
 - Submergence Vulnerability Index (SVI)

Classify Tool



Classify Tool

Tools Menu

Classify

Type: Hydro

Attribute: Salinity

Year: 2012

Change Colors/Intervals

Range: 0 to 26

Intervals: 3

Classify Clear

Assessment

Tools Menu

Classify

Type: Hydro

Attribute: Salinity

Year: 2012

Change Colors/Intervals

Range: 13 to 26

Intervals: 5

Classify Clear

Assessment

Tools Menu





Classify

Type: Hydro

Attribute: Salinity

Year: 2012

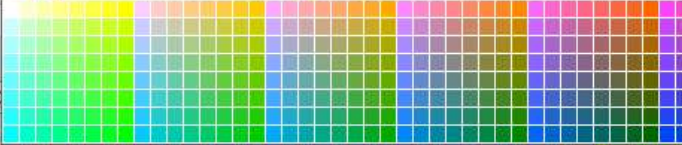
Change Ranges

13	15.6	
15.6	18.2	
18.2	20.8	
20.8	23.40	
23.40	26	

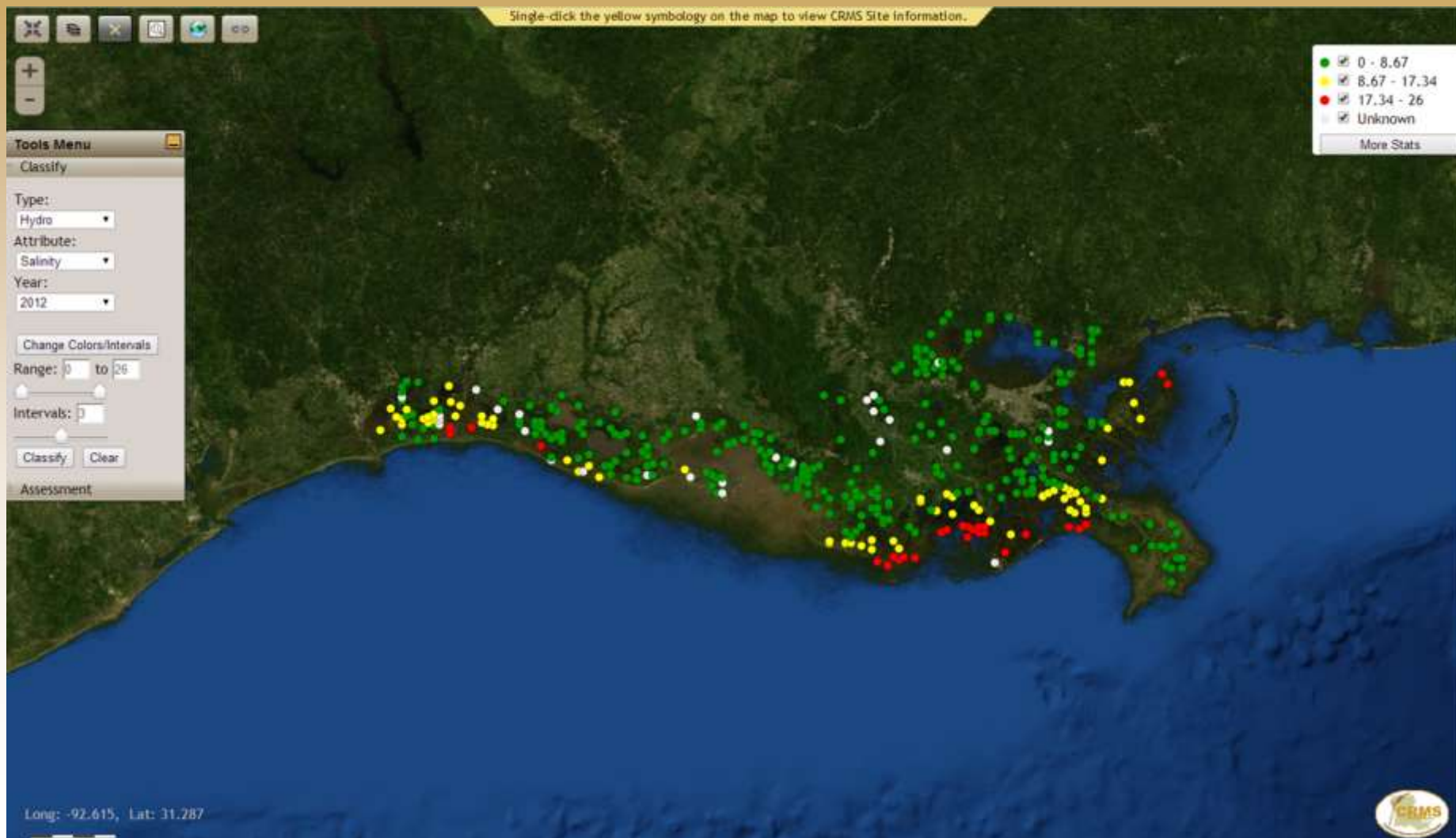
Unknown

Classify

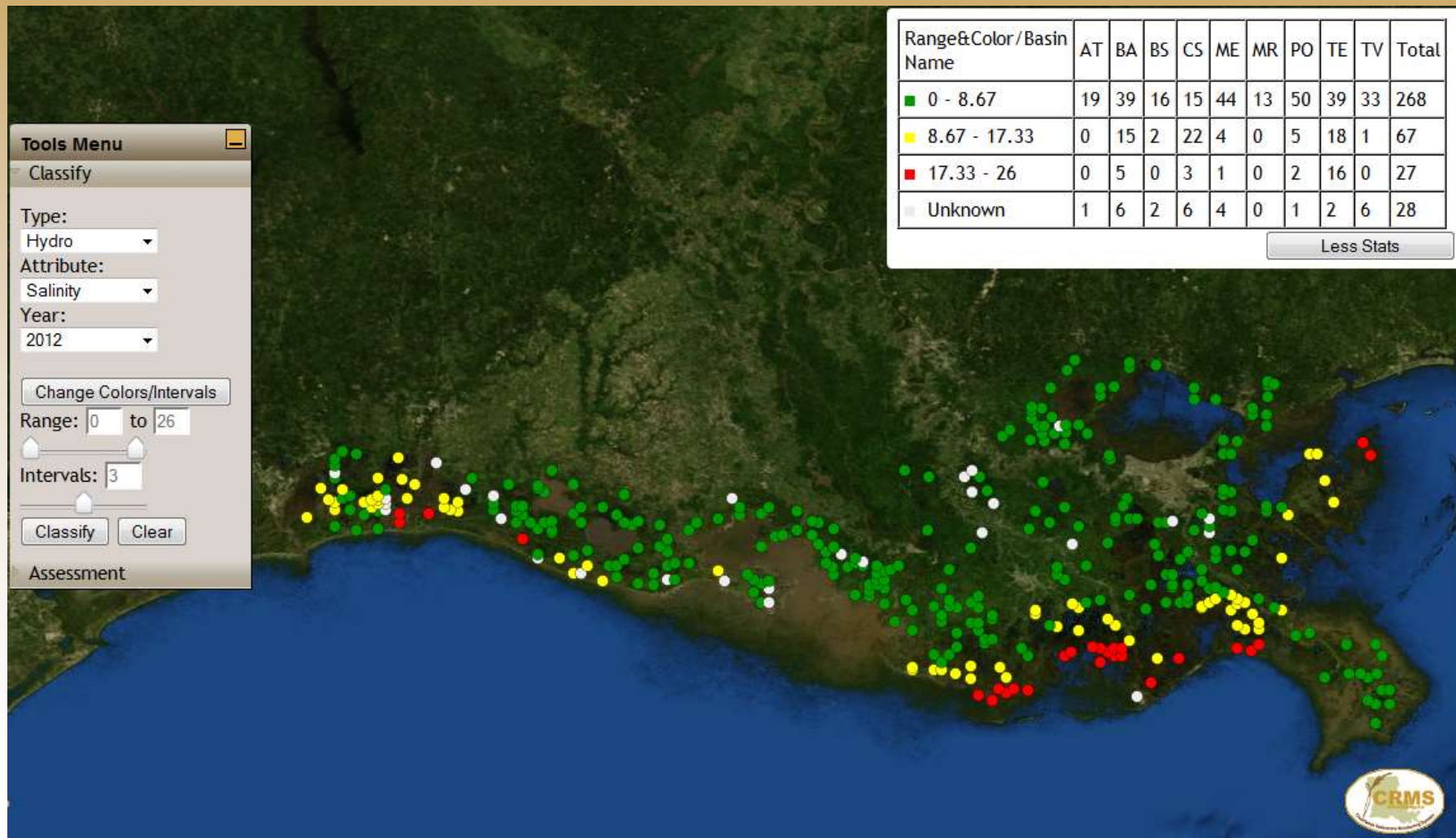
Assessment

A color calibration chart is overlaid on the bottom right of the interface. It consists of a grid of 30 color patches arranged in 5 rows and 6 columns. The colors transition through a spectrum from cyan and green on the left, through yellow and orange in the middle, to red, purple, and blue on the right. Each patch is a small square with a black border.

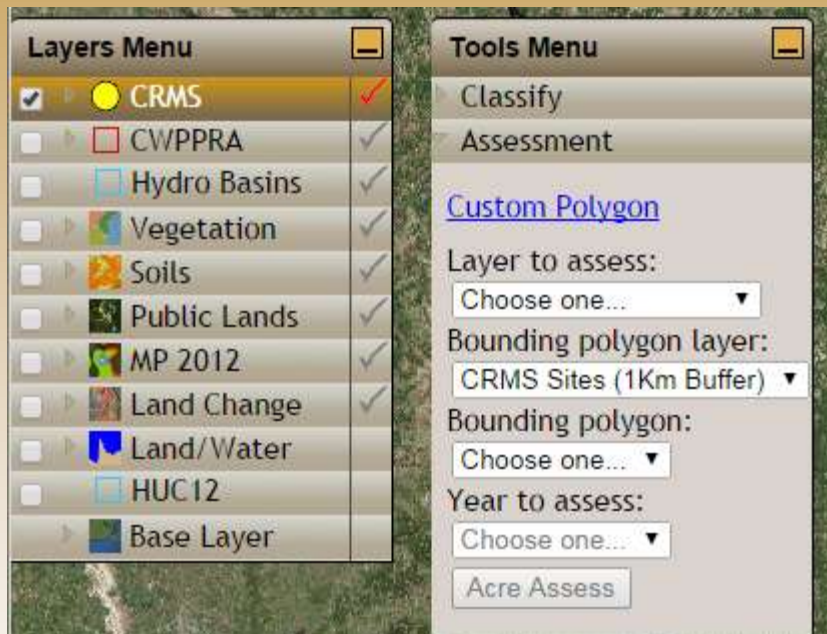
Classify Tool



Classify Tool



Acreage Assessment Tool

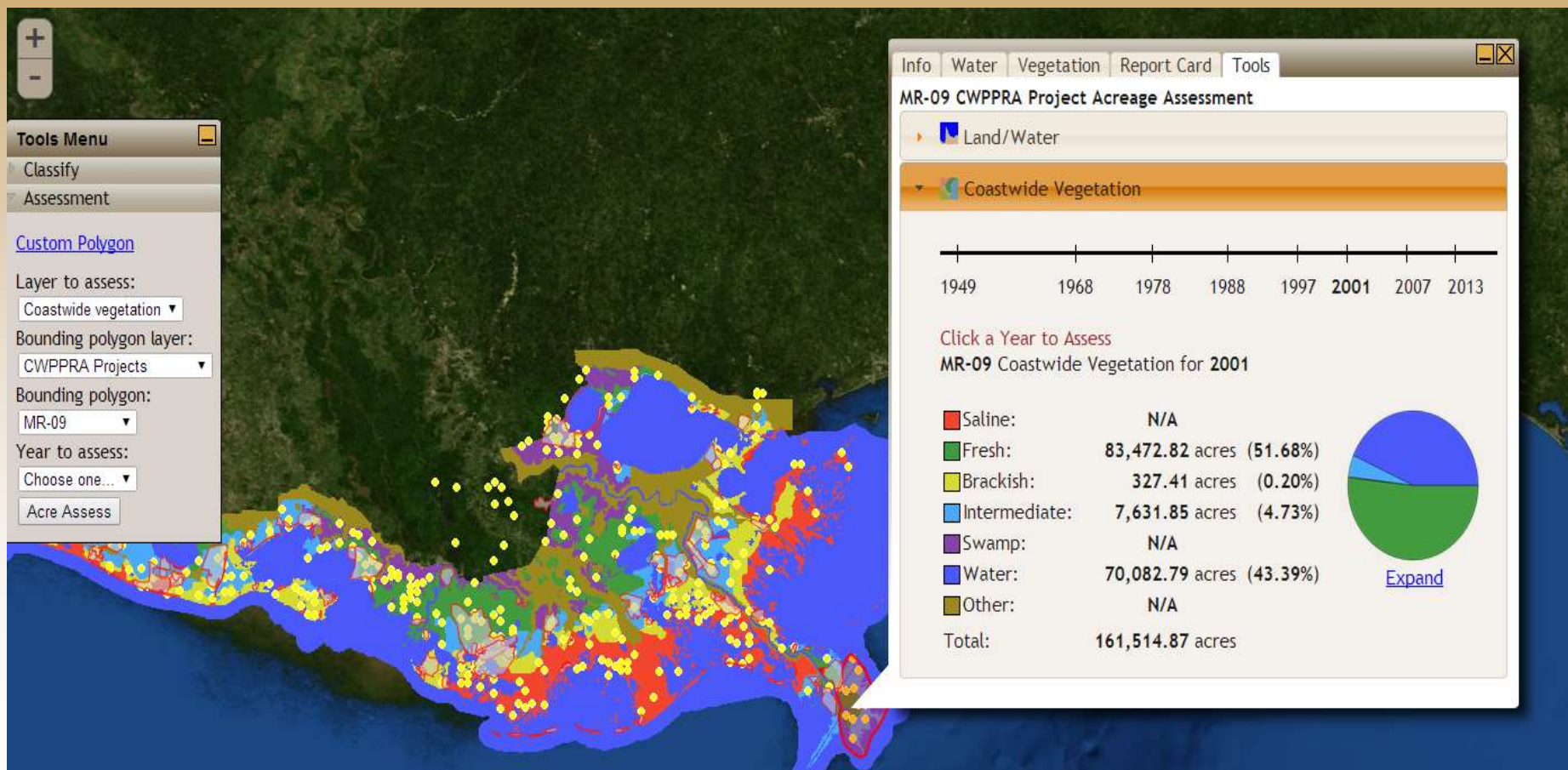


A custom polygon can be drawn on the map to assess the area of the polygon drawn.

A Type, Attribute, and Year must be chosen to classify the CRMS sites. All of the attributes except for the Marsh Classification have a color chooser option.

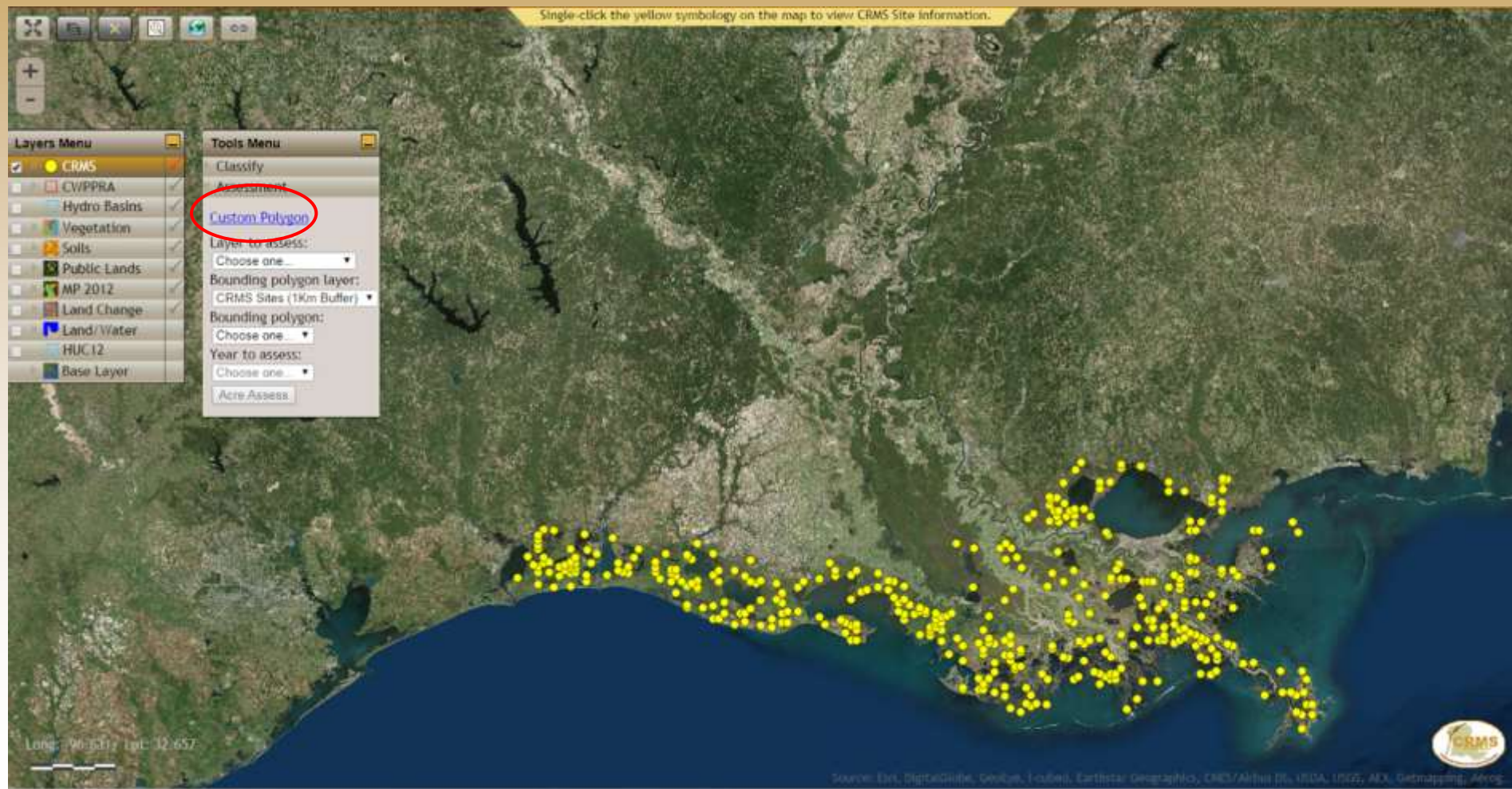


Acreage Assessment Tool





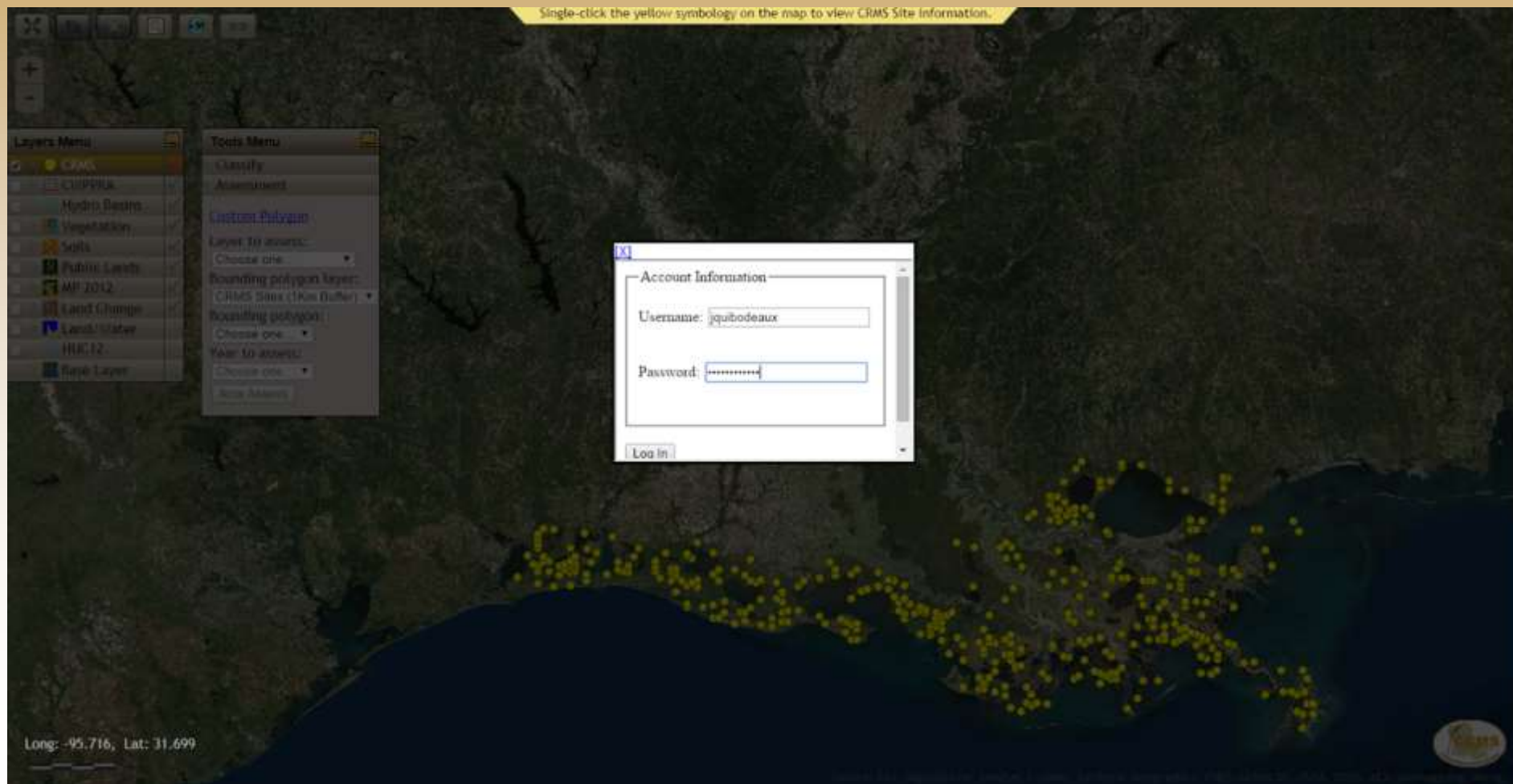
Custom Acreage Assessment





Request Password:

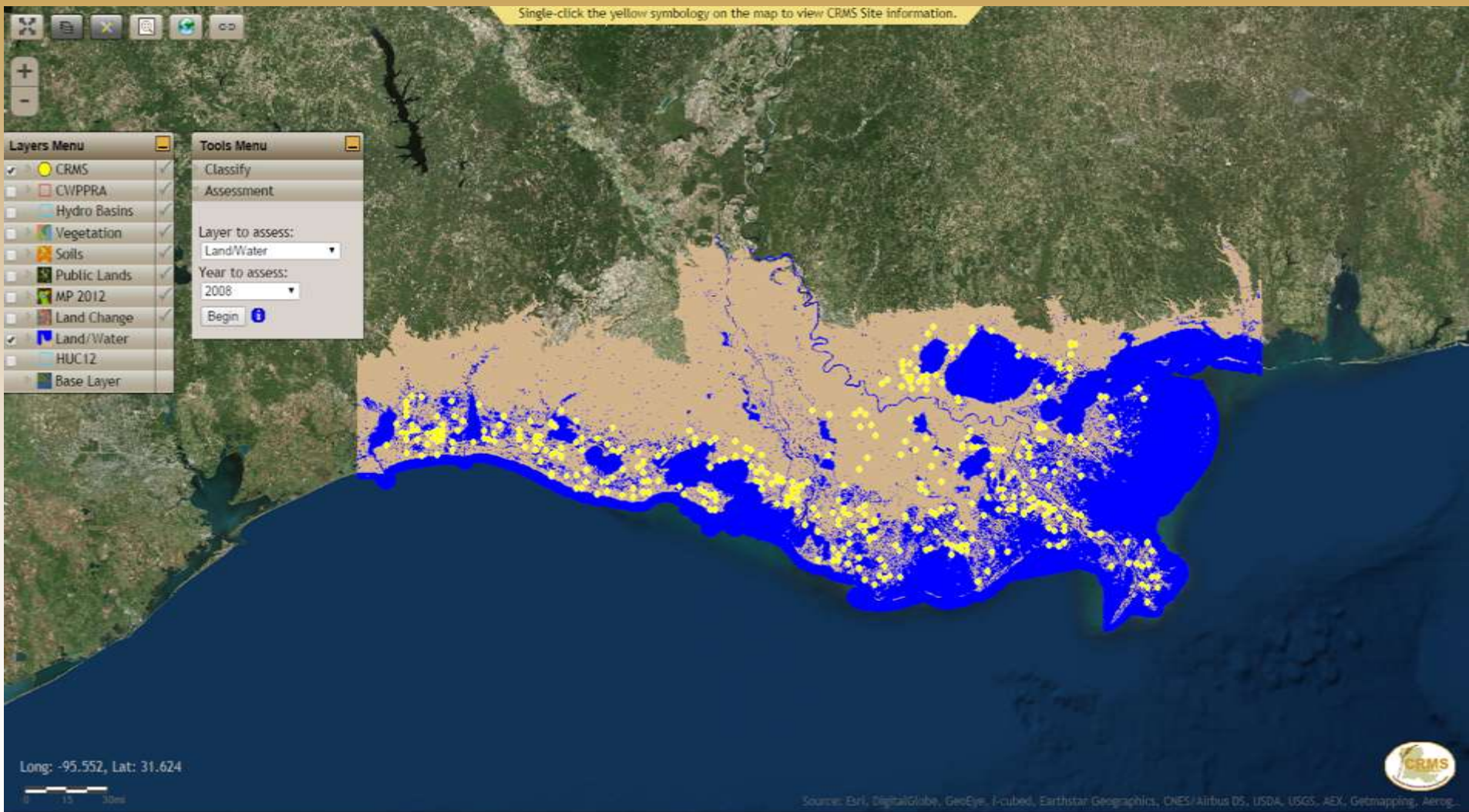
E-mail: jquibodeaux@usgs.gov





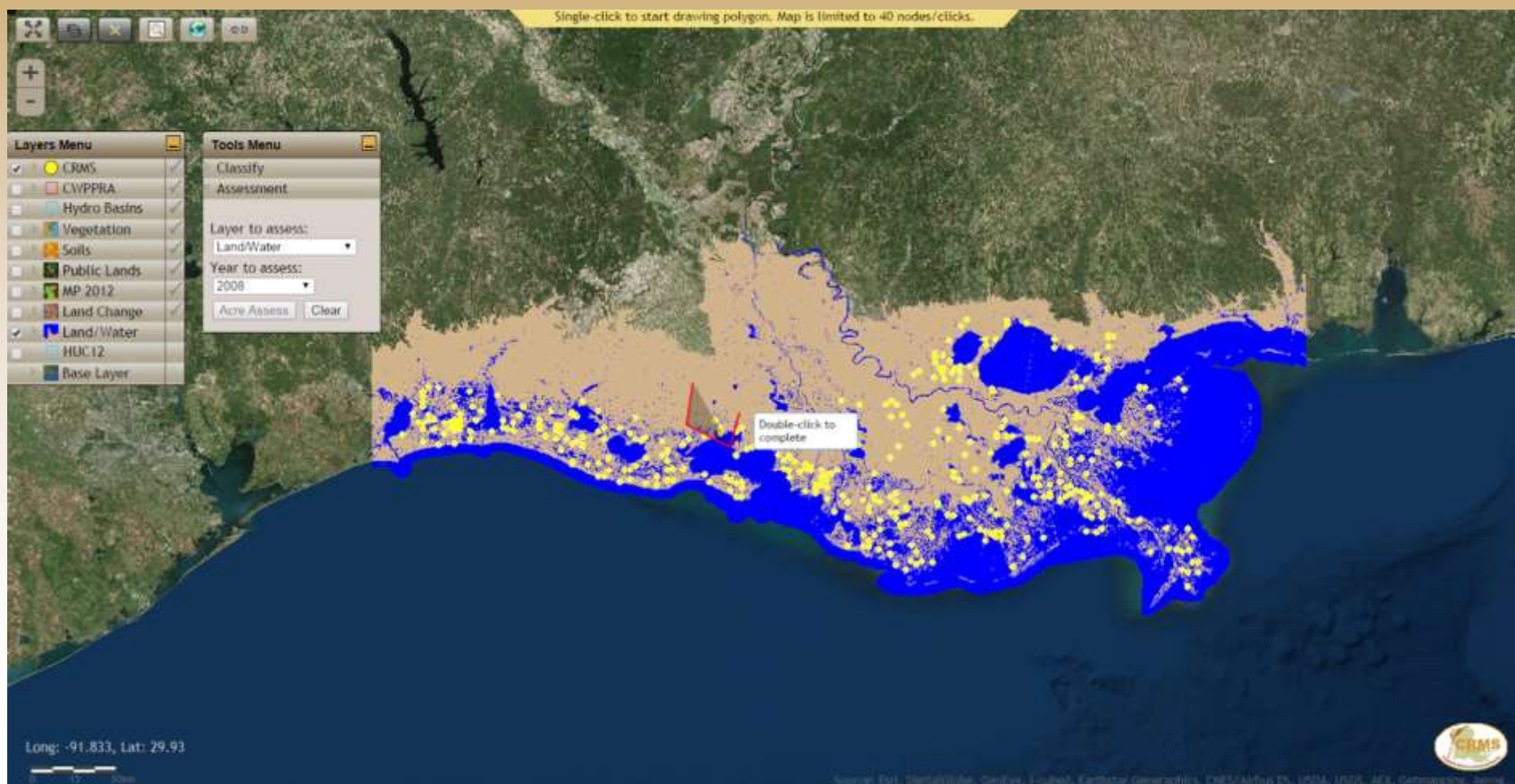
Custom Acreage Assessment

Single-click the yellow symbology on the map to view CRMS Site information.



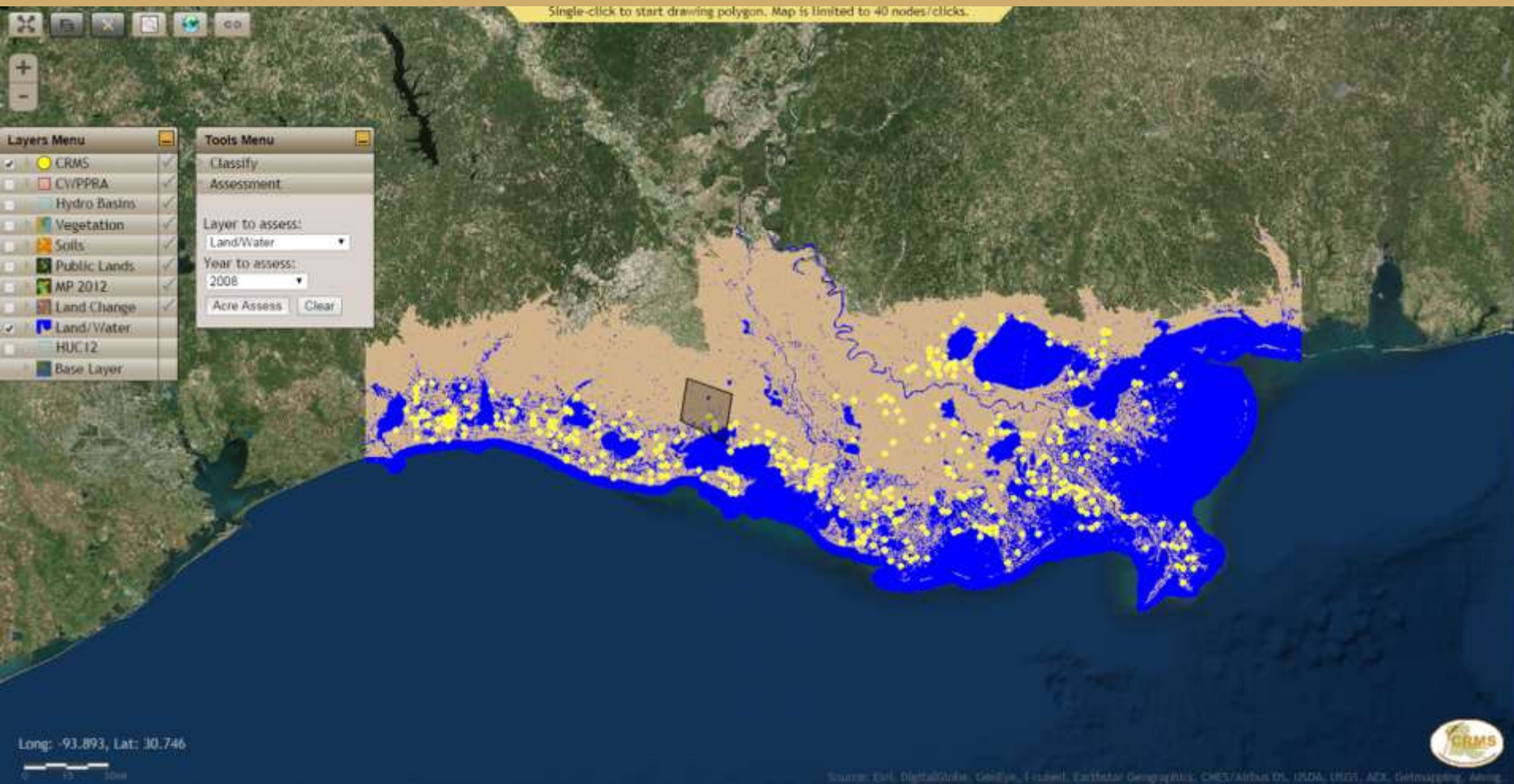


Custom Acreage Assessment



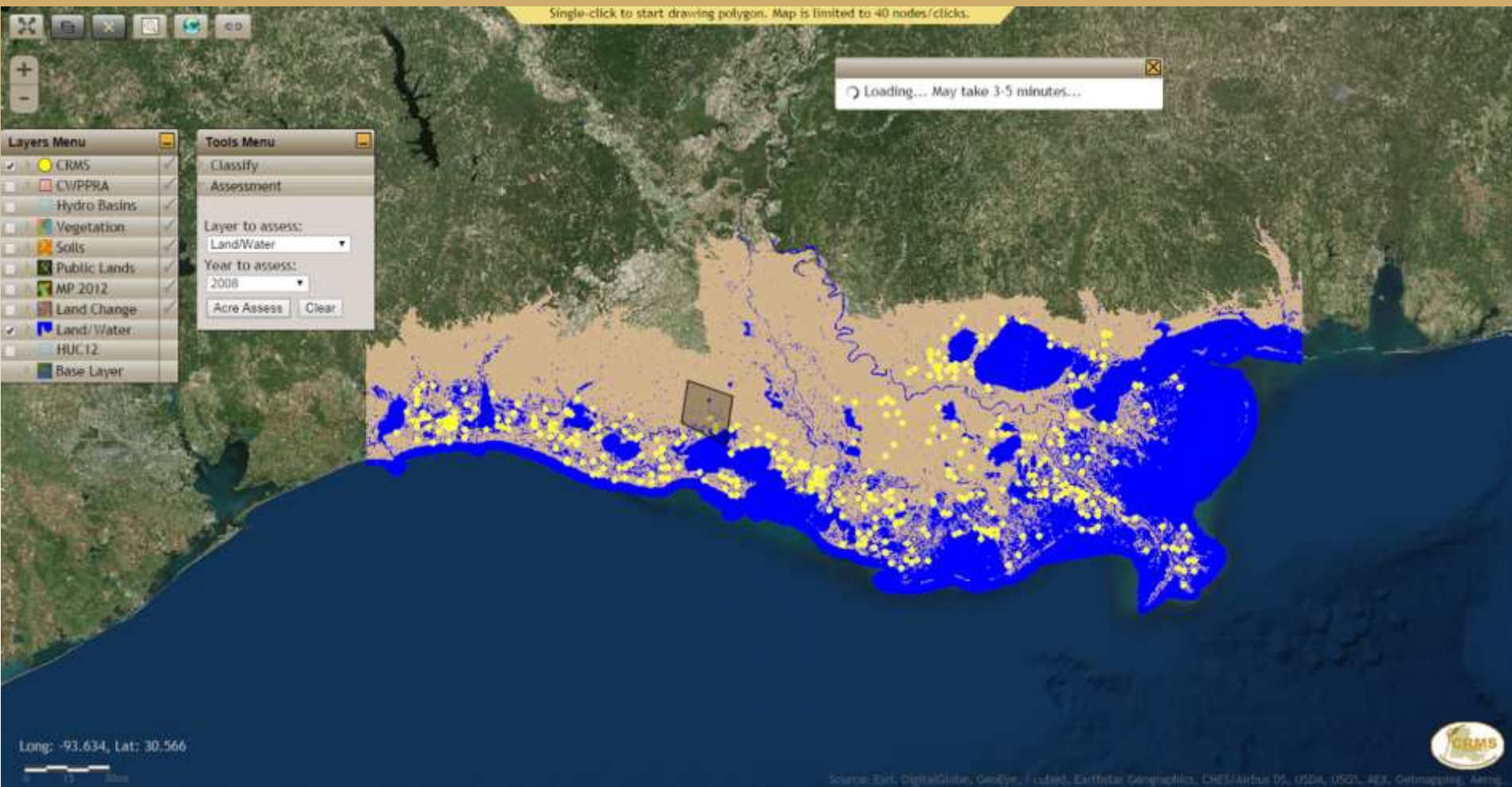


Custom Acreage Assessment





Custom Acreage Assessment





Custom Acreage Assessment

Single-click to start drawing polygon. Map is limited to 40 nodes/clicks.

Drawn Polygon Land/Water for 2008

Water:	54,037.09 acres	(37.84%)
Land:	88,754.39 acres	(62.16%)
Total:	142,791.48 acres	

- Layers Menu**
- ☒ CRMS
 - ☐ CWPRA
 - ☐ Hydro Basins
 - ☐ Vegetation
 - ☐ Soils
 - ☐ Public Lands
 - ☐ MP 2012
 - ☐ Land Change
 - ☒ Land/Water
 - ☐ HUC 12
 - ☐ Base Layer

- Tools Menu**
- ☒ Classify
 - ☒ Assessment
- Layer to assess:
Land/Water
- Year to assess:
2008
- Acre Assess Clear

Long: -93.485, Lat: 30.351



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero, Getmapping, Aerig





Questions?

<http://www.lacoast.gov/crms>

piazzas@usgs.gov